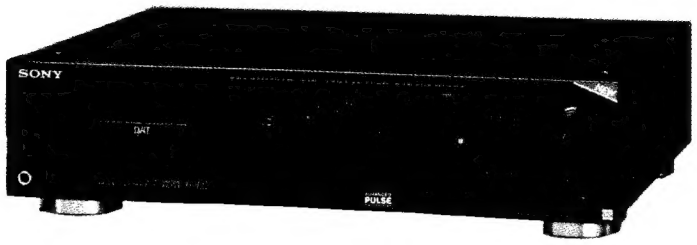
DTC-60ES

SERVICE MANUAL

US Model
Canadian Model
AEP Model
E Model



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SPECIFICATIONS

Tape	Digital audio tape
Recording head	Rotary head
Recording time	Standard: 120 minutes. Long-play mode: 240 minutes (with DT-120)
Tape speed	Standard: 8.15 mm/s, Long play mode: 4.075 mm/s
Drum rotation	Standard: 2,000 rpm, Long-play mode: 1,000 rpm
Error correction	Double Read Solomon code

Tape

Track pitch	13.6 µm (20.4 µm)
Sampling frequency	48 kHz, 44.1 kHz, 32 kHz
Modulation system	8 -10 Modulation
Transfer rate	2.46 Mbit/sec.
Number of channel	2 channels, stereo
D/A conversion (Quantization)	Standard: 16-bit linear Long-play mode: 12-bit non-linear
Frequency response	Standard: 2 - 22,000 Hz (±0.5 dB) Long-play mode: 2 - 14,500 Hz (±0.5 dB)
Signal to noise ratio	Standard: more than 92 dB Long-play mode: more than 92 dB
Dynamic range	Standard: more than 92 dB Long-play mode: more than 92 dB
Total harmonic distortion	Standard: less than 0.0045 % (1 kHz) Long-play mode: less than 0.08 % (1 kHz)

MICROFILM

Model Name Using Similar Mechanism	DTC-59ES
Tape Transport Mechanism Type	DATM-102

Wow and flutter — Below measurable limit (±0.001 % W. PEAK)

Input

	Jack type	Impedance	Rated input level
LINE IN	phono jack	47 kohms	–4 dBs
DIGITAL IN	phono jack	75 ohms	0.5 Vp-p, ±20 %
DIGITAL IN	optical jack	—	—

Output

	Jack type	Impedance	Rated output	Load impedance
LINE OUT	phono jack	470 ohms	–4 dBs	More than 10 kohms
PHONES	stereo phone jack	220 ohms	0.6 mW	32 ohms
DIGITAL OUT	phono jack	75 ohms	0.5 Vp-p ±20 %	—

DIGITAL OUT (optical jack): wavelength 660 nm

—Continued on next page—

DIGITAL AUDIO TAPE DECK

SONY®

General

Power requirements
U.S.A, Canadian model: 120V AC, 60Hz
AEP model: 220 — 230V AC, 50/60Hz
E model: 110 — 120/220 — 240V AC, 50/60Hz
German model: 220 — 230V AC, 50Hz

Power consumption
U.S.A, Canadian model: 33W
EXCEPT U.S.A, Canadian model: 35W

Dimensions	U.S.A. model: Approx. 430 × 110 × 350 mm (w/h/d) (17 × 4 3/8 × 13 7/8 inches) EXCEPT U.S.A. model: Approx. 470 × 110 × 350 mm (w/h/d) (18 5/8 × 4 3/8 × 13 7/8 inches)
Mass	U.S.A. model: Approx. 6.0 kg (13 lb 4 oz) (w/h/d) EXCEPT U.S.A. model: Approx. 6.6 kg (14 lb 10 oz)

Remote commander (supplied)

Remote control system	Infrared control
Power requirements	3V DC, with two size AA (R6) batteries
Dimensions	Approx. 63 × 19 × 175 mm (w/h/d) (2 1/2 × 3/4 × 7 inches)
Mass	Approx. 130 g (4 oz) incl. batteries.

Supplied accessories

Sony batteries SUM-3(NS) (2)
Audio connecting cords (2 phono plugs - 2 phono plugs, stereo for line inputs and outputs) (2)
Screws (4) (only on the Canadian model)

Design and specifications are subject to change without notice.

TABLE OF CONTENTS

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

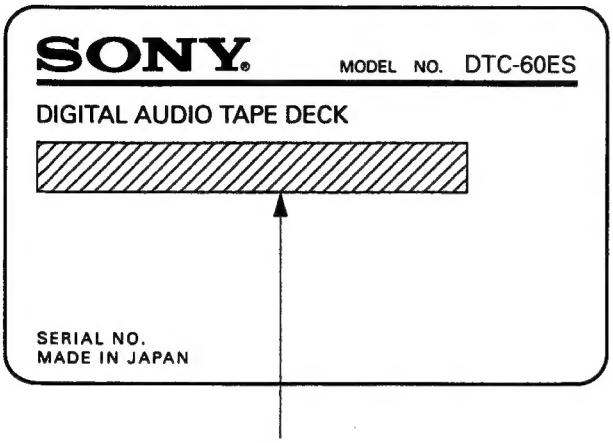
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER SES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

PRECAUTIONS FOR INSPECTIONS AND REPAIR WITH POWER OFF

Remove the flexible board 10 seconds after the POWER is turned off when performing repair under the power off condition. In such a case, pull the flexible board straight, not moving it left or right.
Otherwise, residual charge in a smoothing capacitor on the power board even after power off could destroy an element if the power terminal shorts with adjacent terminal during disconnection of flexible board.

MODEL IDENTIFICATION

– SPECIFICATION LABEL –



US, Canadian model : AC 120V 60Hz 33W
AEP model : AC 220V–230V~ 50/60Hz 35W
E model : AC : 110–120, 220–240V~ 50/60Hz 35W
German model : AC 220–230V~ 50Hz 35W

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

ADVERSEL !
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Lever det brugte batteri tilbage til leverandøren.

ADVARSEL
Lithiumbatteri – Eksplosjonsfare.
Ved utskifting benyttes kun batteri som
anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleveranderen.

VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreskrifter.

VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig.A)

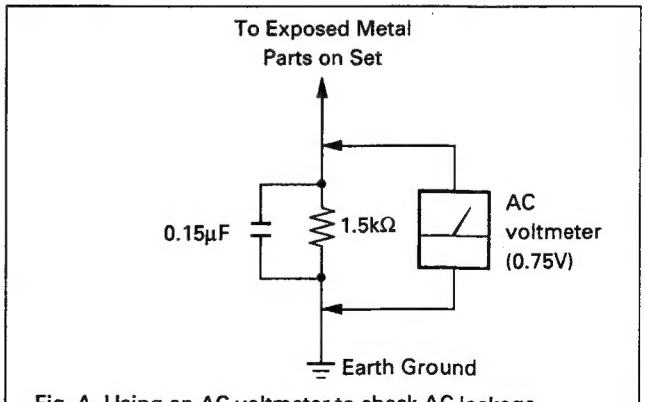
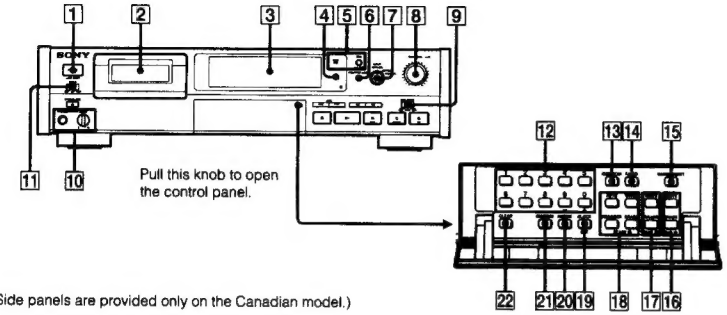


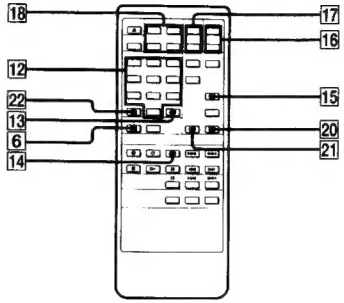
Fig. A. Using an AC voltmeter to check AC leakage.

Location and Function of Controls

Front Panel Remote Commander



(Side panels are provided only on the Canadian model.)



1 POWER switch
Turns the power on and off.

2 Cassette compartment
Insert a cassette with the window side up and the safety tab facing you.

3 Display window

4 Remote sensor
Receives the signal from the remote commander.

5 SBM (Super Bit Mapping) switch and indicator
Set to ON for Super Bit Mapping during analog recording through the LINE IN jacks in STANDARD recording mode (REC MODE selector).
SBM indicator lights when the SBM function is on (applicable during analog recording only).

6 COUNTER MODE button
Selects the display of the absolute time, elapsed time of the current selection, remaining time to the end of whole tape or linear counter (tape running time). Each time you press the button, the display changes sequentially.

7 INPUT selector
Set according to the signal to be recorded.
ANALOG: For recording from the equipment connected to the LINE IN jacks.
OPTICAL: For recording from the equipment connected to the DIGITAL IN (OPTICAL) jack.
COAXIAL: For recording from the equipment connected to the DIGITAL IN (COAXIAL) jack.

8 REC LEVEL (recording level) controls
Adjust the recording levels and balance for the analog input signals.
The outer knob controls the L (left) channel level and the inner knob the R (right) channel level. The knobs can be adjusted together. To adjust each channel independently, turn the knob while holding the other knob.
When recording digital signals, it is not necessary to adjust the recording levels.

9 REC MODE selector
Normally set to the STANDARD position.
When this selector is set to the LONG position, you can record analog input signals or digital signals with 32 kHz in the long-play mode.

10 PHONES-LEVEL jack and control
Insert the headphones plug to this jack and turn the control to adjust the headphones volume level.

11 TIMER switch
Normally set to the OFF position. When recording or playing back at the desired time using a commercially available audio timer, set to the REC position or the PLAY position respectively.

12 Numeric buttons (0 - 9)
Designate the desired program number to be played back before starting playback. Designate the desired number in the record-pause mode, the program number is written consecutively from the designated number.

13 MUSIC SCAN button
Press to listen to the beginning of each selection successively.

14 FADER button
Press to fade in or fade out during recording or playback.

15 MARGIN RESET button
Press to reset the margin of peak level.

16 END ID buttons
WRITE: Press to write the ID signifying the end of playback or recording.
ERASE: Press to erase the end ID.

17 SKIP ID buttons
WRITE: Press at the beginning of the portion you may wish to skip later. A skip ID will be written from the point where you pressed this button.
ERASE: Press to erase the nearest skip ID which is before the current position.

18 START ID buttons
AUTO: Press to turn on and off the AUTO indicator. When the AUTO indicator is lit, the start ID will automatically be written during recording. When the AUTO indicator is not lit, press the START ID WRITE button at the point where you want to write a start ID.
WRITE: Press to write the start ID at the desired point during recording or playback.
ERASE: Press to erase a start ID. When a start ID and a program number are written on the tape, both codes are simultaneously erased by pressing this button.
RENUMBER: Press to renumber all programs on the tape. When only the start IDs are written, pressing this button will insert the proper program numbers beginning with "1". The tape will rewind and start from the beginning to accomplish this function.

19 CLOCK SET button
Press to adjust the time of the clock built in this unit. In this mode, the 0 button and the 9 button function as the + and – buttons respectively.

20 PRESENT button
Press to display the current time.
Each time the RECORDED or PRESENT button is pressed, day, month and year display, the day of the week display or hour, minute and second display is switched sequencially.

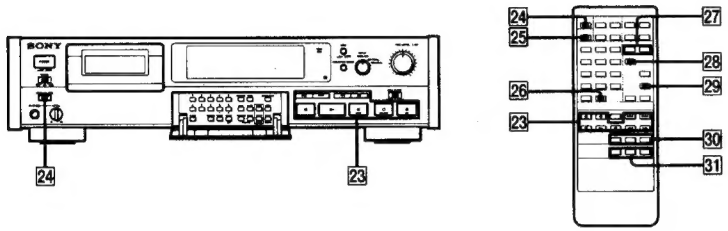
21 RECORDED button
Press to display the recording day of the tape being played.

22 CLEAR button
Press to cancel the program number which has been mistakenly entered.

This section is extracted from instruction manual.

Location and Function of Controls

Front Panel Remote Commander



23 Tape operating buttons

■ (stop): Press to stop recording or playback.

► (play): Press to play back the tape.

II PAUSE (pause): Press to stop for a moment during recording or playback. To restart recording or playback, press this button again or press the ► button.

If the unit is left in the pause mode for about 10 minutes, it will automatically be released and the deck will enter the stop mode. To restart recording or playback from the stop mode, press the ● REC or ► button respectively.

○ REC MUTE (record muting): Inserts a sound-muted portion (space).

● REC (recording): Press to enter the record-pause mode. After pressing this button, press the II PAUSE or ► button.

I◄◄ / ►►I (AMS): Press to locate the beginning of the selection during the playback.

◄◄ / ►► (rewind/review, fast-forward/cue): In the stop mode, press to rewind/fast-forward the tape. During playback, press to rewind or fast-forward the tape while listening to the sound.

24 ⏏ OPEN/CLOSE button

Press to open or close the cassette compartment.

25 DISPLAY MODE button

Changes the display mode. (Refer to page 10.)

26 RESET

Resets the linear counter to "0M 00s".

27 RMS play buttons

ENTER: To program the selections in a desired order, press this button after pressing the numeric buttons.

CHECK: Press to check the programmed contents.

28 REPEAT 1/ALL button

Press to play a desired portion repeatedly. Each time you press the button, the indicatior changes as follows:
REPEAT 1 → REPEAT ALL → off

29 SKIP PLAY button

Press to activate the skip ID code function. The portion of the tape previously marked will be skipped.

30 CD operation buttons

Operative only for the Sony CD player equipped with a Remote Commander.

II (pause): Press this button twice to start playback. Press this button once in the playback mode, the deck enters the pause mode.

I◄◄ / ►►I (AMS): Press to locate the desired selection on the Compact Disc during playback or in the stop mode.

31 CD SYNCHRO (CD synchronized recording) buttons

(The playback of the Sony CD player equipped with a Remote Commander and the recording of the DAT deck can be performed simultaneously.)

STANDBY: Press to set the unit in the record-standby mode.

START: Press to start recording of the DAT deck and then playback of the CD player.

STOP: Press to stop the DAT deck recording and the CD player playback.

Remote Commander Operation

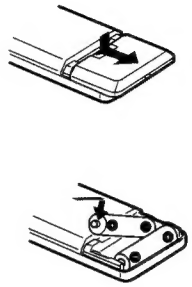
Each button on the remote commander functions in the same way as those having the same name on the front panel.
However, the following operations cannot be performed using the remote commander. Use the front panel controls instead.

- Turning the power on and off
- Selecting digital(optical/coaxial)/analog input source
- Setting the clock
- Adjusting the recording level and balance
- Adjusting the headphones level
- Setting the timer recording/playback
- Selecting the record mode (standard or long)
- Turning the SBM function on and off

The following operations can be performed only with the remote commander.

- Activating CD synchronized recording using a Sony CD player and controlling the CD player
- Locating a selection on the Compact Disc or changing the CD player to pause mode (possible only when a Sony CD player is used)
- Repeat play
- Skip play
- RMS* play
  * RMS: Random Music Sensor
- Resetting the linear counter to "0M 00s"

Installing Batteries



Insert two size AA (R6) batteries with correct polarity, and close the lid.

Notes on remote control

- Do not expose the remote sensor on the deck to strong light such as direct sunlight, lighting apparatus, etc.
- Do not place any obstructions between the Remote Commander and the remote sensor, or else operations will not be performed correctly.
- The controllable range is limited. Point the Remote Commander directly at the remote sensor on the deck.
- When remote control operation distance becomes shorter, the batteries are weak. Replace both batteries with new ones.

To avoid battery leakage

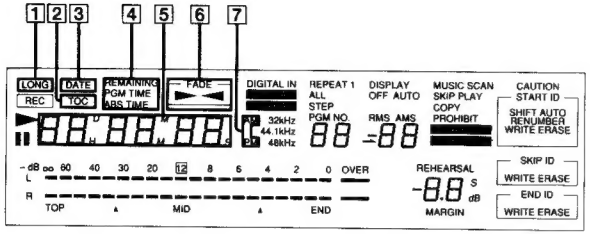
When the commander will not be used for a long period of time, remove the batteries to avoid damage caused by battery leakage and corrosion.

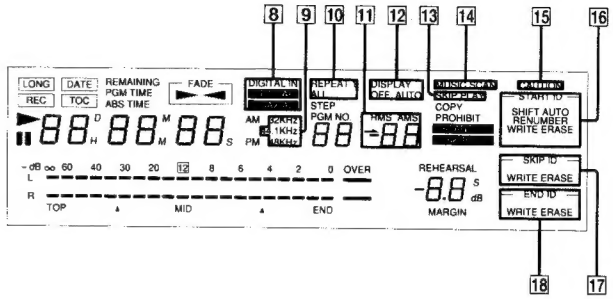
Battery life

About half a year of normal operation can be expected when using the Sony SUM-3 (NS) batteries.

Location and Function of Controls

Display Window





To turn off the display window
When the power is turned on, the display window also is turned on. During recording or playback, all display or some parts of the display can be turned off as follows:
When operating with the front panel controls
While pressing the COUNTER MODE button, press the 0 button.
When operating with the remote commander
Press the DISPLAY MODE button.
Each time you press the above buttons, the indicators change as follows:

Normal indicators ←
↓
Peak level meters and margin indicators go off.
(The DISPLAY OFF indicator lights.)
↓
All the indicators go off during recording or playback*.
(The DISPLAY OFF AUTO indicator lights momentarily just before the indicators go off.)

* When pressing the COUNTER MODE or DISPLAY MODE button except during recording or playback, the DISPLAY OFF AUTO indicator lights. In this case, all the indicators go off immediately after recording or playback starts.

To change the brightness of the display window
While pressing the COUNTER MODE button on the front panel or the COUNTER MODE button on the remote commander, press one of the numeric buttons 1, 2 and 3. The greater number pressed, the darker the display window becomes.

1 LONG play mode indicator
Lights when recording or playback is being performed in the long play mode.

2 TOC (Table Of Contents) indicator
When a pre-recorded DAT cassette is played back, this indicator will light.

3 DATE indicator
Lights when the RECORDED button is pressed to display the recording day of the tape being played. Flashes when the PRESENT button is pressed to display the current time.

4 REMAINING (remaining time): Lights when the counter shows the remaining time of the tape.
PGM TIME (program time): Lights when the counter shows the elapsed time of the current selection.
ABS TIME (absolute time) indicator: Lights when the counter shows the elapsed time from the beginning of the tape.

5 Time indicator
Indicates the tape running time, absolute time, elapsed time of the current selection, remaining time or recording day. Each time the COUNTER MODE button is pressed, the display is changed.

6 Fade in/out indicator
FADE : Flashes when recording or playback fades in.
FADE : Flashes when recording of playback fades out.

7 AM/PM indicators
Show AM or PM of the time.

8 INPUT selector indicators
The DIGITAL IN OPTICAL or COAXIAL indicator lights according to the position of the INPUT selector. No indicator lights when the INPUT selector is set to the ANALOG position.

9 SAMPLING FREQ. (Sampling frequency) indicator
48kHz: For recording/playback of analog input signals (standard mode).
44.1kHz: For recording/playback of CD, a pre-recorded DAT cassette or analog input signals.
32kHz: For recording/playback of analog input signals (long-play mode).

10 REPEAT indicators
REPEAT 1: Lights when a desired selection is played back repeatedly.
REPEAT ALL: Lights when all the selections are played back repeatedly.

11 AMS (Automatic Music Sensor)/RMS (Random Music Sensor) indicators
Show the number of selections to be skipped ahead or behind in the AMS operation. When designating a selection directly by the numeric button and the ► button, the display shows the program number of the target selection while the selection is being searched for. When programming the desired selections in the RMS operation (page 39), the display shows the program number of the selection to be programmed.

12 DISPLAY OFF/AUTO indicators
The DISPLAY OFF indicator lights when peak level meters and margin indicators are turned off. The DISPLAY OFF AUTO indicator lights momentarily before all the indicators are turned off.

13 SKIP PLAY indicator
When this indicator is lit during playback, the portion marked by the skip ID is skipped and playback continues from the next start ID.

14 MUSIC SCAN indicator
Lights after the MUSIC SCAN button is pressed to listen to the beginning of each selection successively.

15 CAUTION indicator
Lights when moisture condensation occurs. If this happens, the deck stops functioning automatically. (See page 4.)

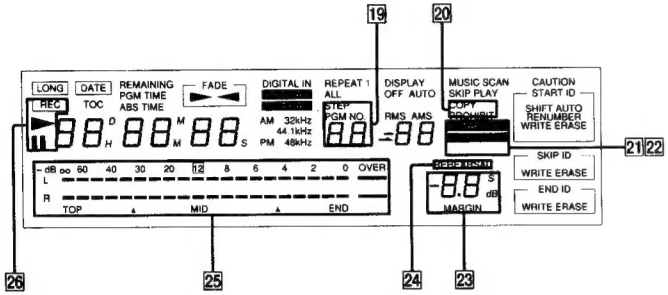
16 START ID mode indicators
AUTO: Lights when the AUTO button is pressed to write the start ID automatically.
RENUMBER: Lights when the RENUMBER button is pressed to renumber the program numbers.
WRITE: Lights when writing the start ID manually.
ERASE: Lights when erasing the start ID.
AUTO RENUMBER: Lights when renumbering program numbers automatically.
SHIFT RENUMBER: Lights when shifting the start ID and program number position.

17 SKIP ID mode indicator
WRITE: Lights when writing the skip ID.
ERASE: Lights when erasing the skip ID.

18 END ID mode indicator
WRITE: Lights when writing the end ID.
ERASE: Lights when erasing the end ID.

Location and Function of Controls

Display Window



19 STEP/PGM NO. indicator
Shows the program number of the selection being played. When programming the desired selection with the RMS operation (page 39), the display shows the step number of the programmed selection.

20 COPY PROHIBIT indicator
Lights when recording the digital signal with the copy prohibit code. In this case, record with the LINE IN jacks.

21 START ID indicator
Flashes when writing (for 9 or 18 seconds) or erasing a start ID code, and lights when the start ID is detected during playback.

22 SKIP ID indicator
Lights when writing (for 1 or 2 seconds) or erasing a skip ID code or when the skip ID is detected during playback.

23 MARGIN indicator
Shows how much margin there is between the peak level of input audio signal and 0 dB.

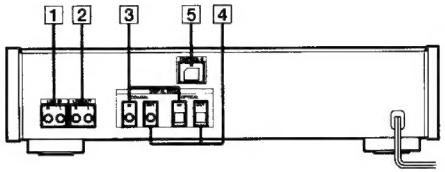
24 REHEARSAL indicator
Lights while the rehearsal function is activated (page 29).

25 Peak level meters/Frequencies map
Indicate the signal levels during playback and recording. There are separate meters for each left and right channel. These meters have a peak hold function which indicates the peak level momentarily.
When pressing the 4 button while keeping the COUNTER MODE button pressed, the sampling frequencies with which the tape was recorded is displayed (page 35).

26 Tape operation indicators
REC : Lights during recording or in the record-pause mode.
► : Lights during recording or playback. It also lights in the record-pause mode or in the play-pause mode.
❚❚ : Lights in the record-pause mode or in the play-pause mode.

Connections

Rear Panel Jacks



1 LINE IN (line input) jacks (phono jack)
Connect to the recording outputs of an amplifier. Signals supplied by the amplifier can be recorded using the sampling frequency of 48 kHz or 44.1 kHz in the standard play mode or 32 kHz in the long play mode.

2 LINE OUT (line output) jacks (phono jack)
Connect to the DAT or tape inputs of an amplifier. The playback signal of this deck will be output.

3 COAXIAL/OPTICAL DIGITAL IN (digital input) jacks (coaxial phono jack/optical jack)
Connect to the digital outputs of an amplifier with a digital output jack or another digital source such as a CD player for digital-to-digital recording.

4 COAXIAL/OPTICAL DIGITAL OUT (digital output) jack (coaxial phono jack/optical jack)
Connect to the digital inputs of an amplifier having a built-in D/A converter or another DAT deck, for playback of a DAT cassette or digital-to-digital recording.

5 CONTROL-S IN jack
Connect to the CONTROL-S output of a Sony amplifier or receiver for remote control.

Notes on connection
- Use the connecting cords specified in the illustrations.
- Turn off the power for all equipments before making connections.
- Be sure to insert the plugs firmly into the jacks. Loose connections may cause hum and noise. When unplugging, grasp the plug and not the cord.

Notes on the optical cable
- Do not bend the cord. When the cord is not used, curl it with a diameter of more than 15 cm (5 $^{7}/_{8}$ inches).
- Do not use it under high temperatures.
- When the optical cable is not connected, cover the OPTICAL IN/OUT jacks with the supplied caps.

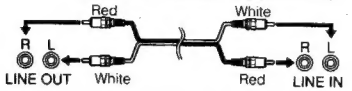
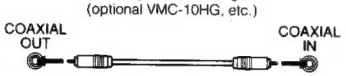
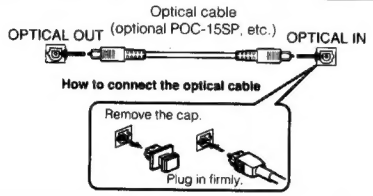
Note on sound signals
When connecting an optical cable to the DIGITAL IN/DIGITAL OUT jacks, sound signals (L/R) are transmitted together through the cable.

Note on the CONTROL-S IN jack
To remote control this unit through a receiver or amplifier, connect the input of this unit to the CONTROL-S output of a Sony receiver or amplifier, with a CONTROL-S cable. When this connection is used, only remote control commands sent through the receiver or amplifier will be executed. The remote sensor of this unit will not function.

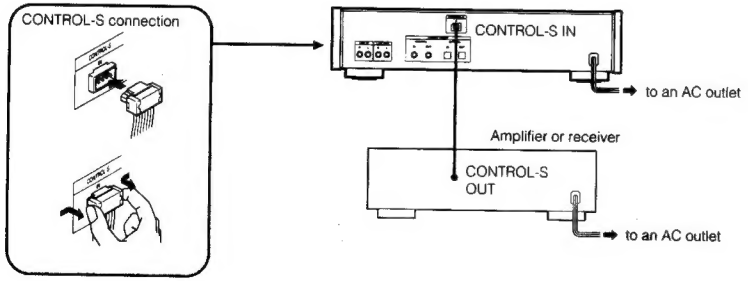
Connections

Connecting Cords

There are following three types of connecting jacks at the rear of the deck. Each type of jack requires a different type of connecting cord.

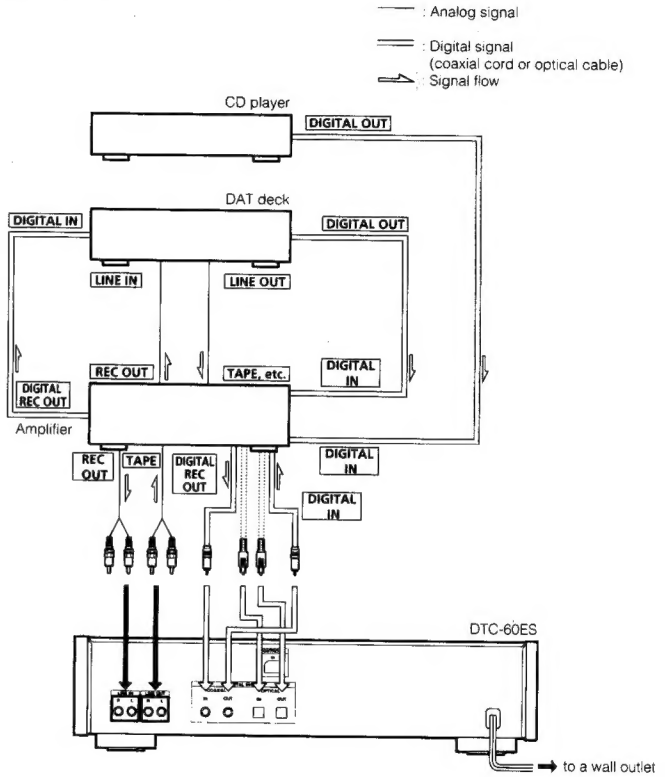
Jack	Required cord
LINE IN/OUT (analog input/output) jacks	Audio signal connecting cord (supplied, or optional RK-C510HG etc.) 
COAXIAL IN/OUT (digital input/output) jacks	Coaxial digital connecting cord (optional VMC-10HG, etc.) 
OPTICAL IN/OUT (optical transmission digital input/output) jacks	Optical cable (optional POC-15SP, etc.) 

Connecting the Remote Control System



Connection Examples

If your amplifier is equipped with digital signal jacks

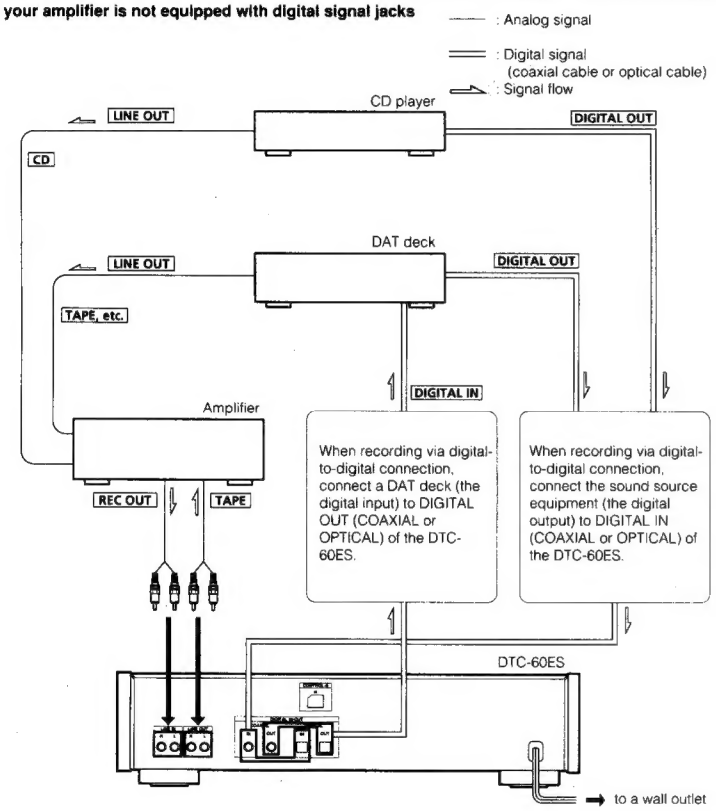


Note
If "COPY PROHIBIT" appears in the display window, recording via digital-to-digital connection cannot be performed.
In this case, connect the sound source equipment using LINE IN and OUT jacks.

Connections

Connection Examples

If your amplifier is not equipped with digital signal jacks



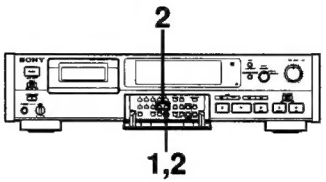
When connecting a microphone
Connecting a stereo microphone amplifier (the analog output) to LINE IN of the DTC-60ES.

Note
If "COPY PROHIBIT" appears in the display window, recording via digital-to-digital connection cannot be performed.
In this case, connect the sound source equipment using LINE IN and OUT jacks.

Clock Setting

This unit uses a built-in clock to keep track of the current date and time. Once you set the date and time, this information will be recorded on the tape along with the audio signal during recording, allowing you to check the recording date of the tape during playback at a later time.

Setting the Date and Time



1 **With the unit stopped, press the CLOCK SET button.**
The year display begins to flash.

2 **Press 9 (–) or 0 (+) to decrease or increase the displayed item, then press the CLOCK SET button.**
The next item begins to flash.

3 **Repeat step 2 until all items have been set.**
For greater accuracy, set the seconds display to zero, then press the CLOCK SET button in synchronization with a timecast (from the telephone or other time source).

To confirm the date or time
Press the PRESENT button to display the date, the day of the week or time. When pressing the PRESENT button once, the date is displayed, when pressing twice, the day of the week is displayed and when pressing three times, the time is displayed. To return to the original counter display, press the COUNTER MODE button.

Time display
The time is displayed in 12-hour format.
Midnight and noon are displayed as follows:
Midnight: 12:00 AM
Noon: 12:00 PM

Built-in clock
This unit's built-in clock operates using a quartz oscillator, and time variations caused by changes in temperature, etc., may accumulate. For precise recording of hour, minute, and second data by the built-in date function, it is recommended that you set the clock once a week.

Precautions when setting the clock
- Set the clock while the tape is stopped.
- Although this unit's clock automatically adjusts for leap years and long and short months, do not enter a date which does not exist.

The day of the week is displayed as follows:

Sunday	SU
Monday	MO
Tuesday	TU
Wednesday	WE
Thursday	TH
Friday	FR
Saturday	SA

Note
This unit uses a back-up battery to keep the clock running when the power is turned off. The life of the battery under normal use is approximately seven years. When the battery starts to run down, the clock will stop operating normally. When this occurs, have the battery replaced at your dealer or nearest Sony Service Center (a battery replacement fee is required).

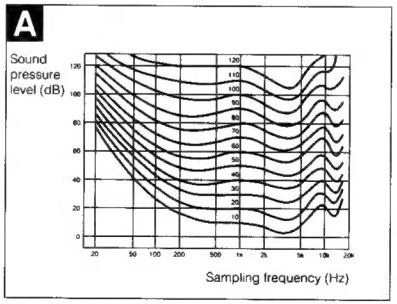
SBM (Super Bit Mapping) Function

During analog recording, the SBM function lowers noise within the frequency band to which to the human ear is most receptive to noise, thereby, sharply expanding the auditory dynamic range of the recorded signal.
To activate the function, turn on the SBM switch when recording an analog source through the analog (LINE IN) connectors except when long-play mode (32 kHz) is selected.

High-precision pulse A/D converter
The DAT deck uses a pulse A/D converter and decimation filter to convert an analog signal into a quantized 24-bit digital signal. DAT, like CDs, uses 16-bit quantization, and thus the 8-bit difference results in more precise quantization, more signal information and less quantizing noise than16-bit quantization. During conversion of the 24-bit data to a 16-bit DAT recording signal, the SBM function boosts sound quality by reintegrating into the 16-bit signal 4 bits of signal information that would normally be lost.

Applying the principle of human hearing
The SBM function applies the principle of human hearing in the reintegration of signal information. The auditory range of the human ear is generally considered to be 20 Hz to 20 kHz; hearing sensitivity, however, shows greater sensitivity to the range between 3 kHz and 4 kHz, and lower sensitivity to frequencies above and below this range (see Fig. A). This principle applies also to quantizing noise as well. By reducing quantizing noise in this particular range, signals can be recorded to produce more expansive sound than is possible by a uniform reduction of noise over the entire audible range.

A



Noise-shaping filter
The SBM function uses a noise-shaping filter (see Fig. B) with a frequency response similar to that of the human ear to reduce quantizing noise within the most sensitive frequency range, and to feed back the quantizing error (that is normally lost) back to the input signal, re-integrating the low-end bit information with the high-end bit information (see Fig. B).

B

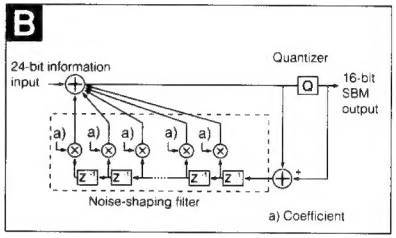
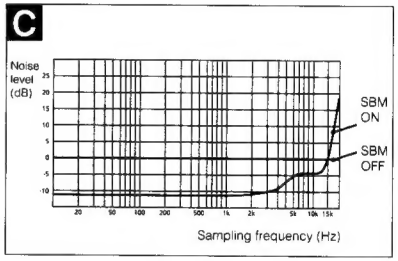


Fig. C shows the improvement in the quantizing noise level when the SBM switch is on. Given a noise level of 0 dB when the SBM switch is off, the improvement in noise level for sampling frequencies lower than 3 kHz exceeds 10 dB when the SBM is activated.

C



The SBM function operates only during recording. The improved sound produced by the SBM function, however, can be enjoyed during playback, regardless of the SBM switch position or the DAT deck being used.

SECTION 2
DISASSEMBLY

- **Remove the following devices shown by ❶, etc. In the order of the numbers.**

[CASE]

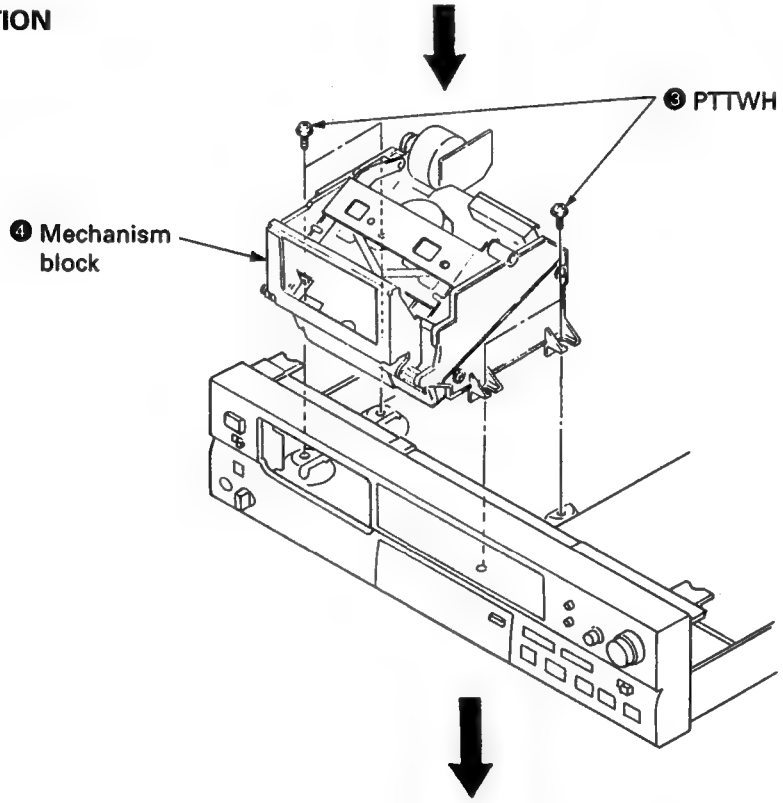
Unscrew the four case attachment screws and remove the case.

[CASSETTE WINDOW]

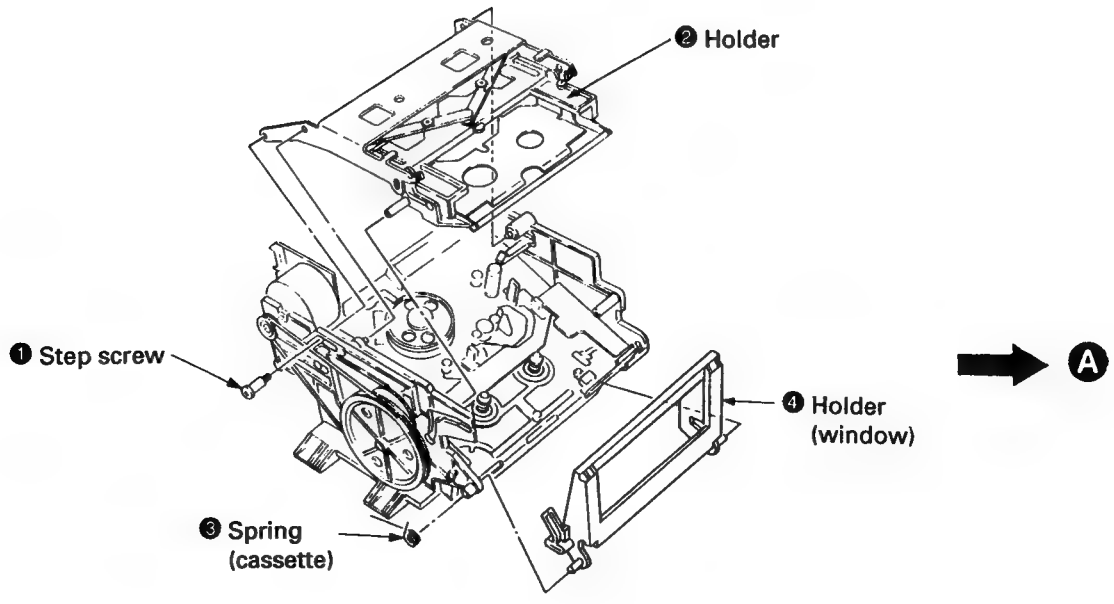
❶ Press the OPEN/CLOSE switch to effect LOADING OUT STATE (if power is not supplied) rotate the pulley in the left side of the Mechanism Deck counterclockwise.)

❷ Remove the cassette by lifting the window up.

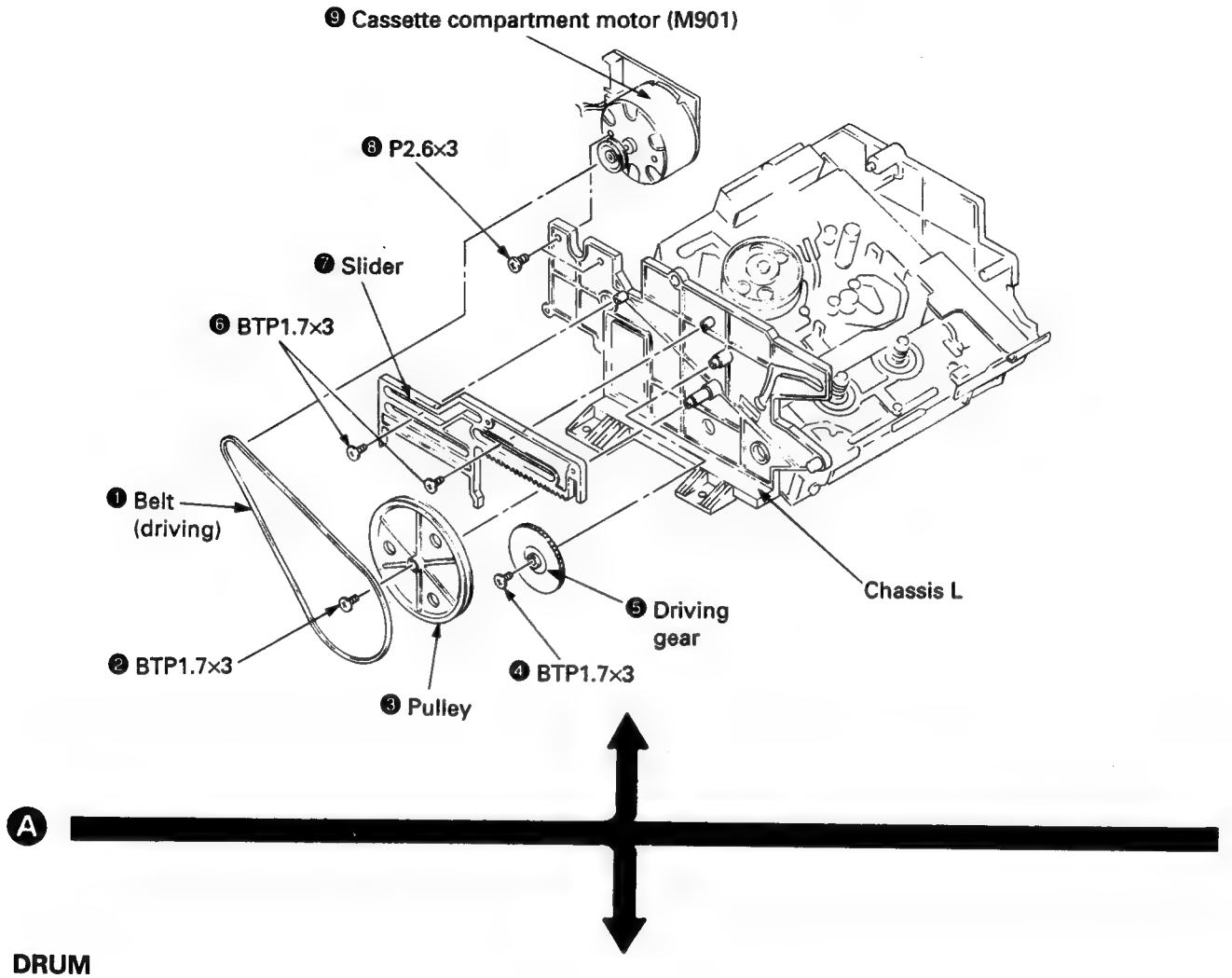
MECHANISM SECTION



HOLDER

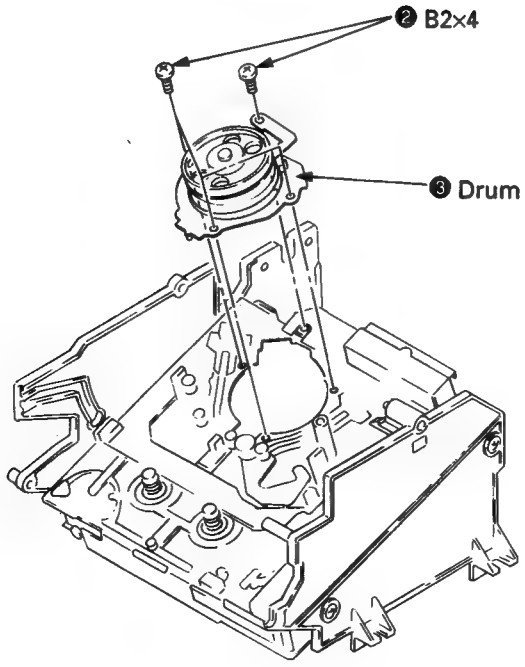


CASSETTE COMPARTMENT MOTOR (M901), PULLEY, GEAR (CAM) AND SLIDER



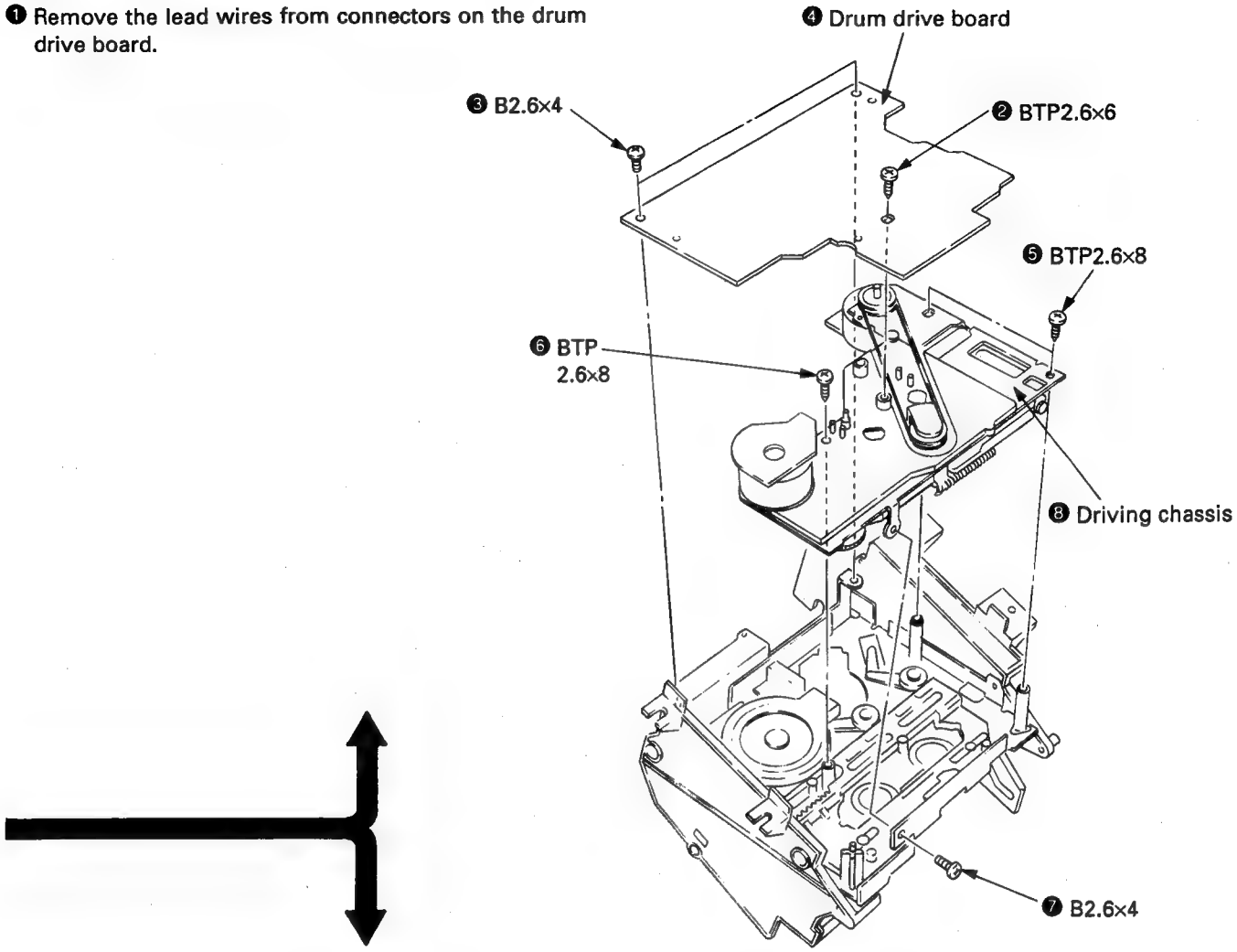
DRUM

❶ Remove the drum lead wires from connectors.

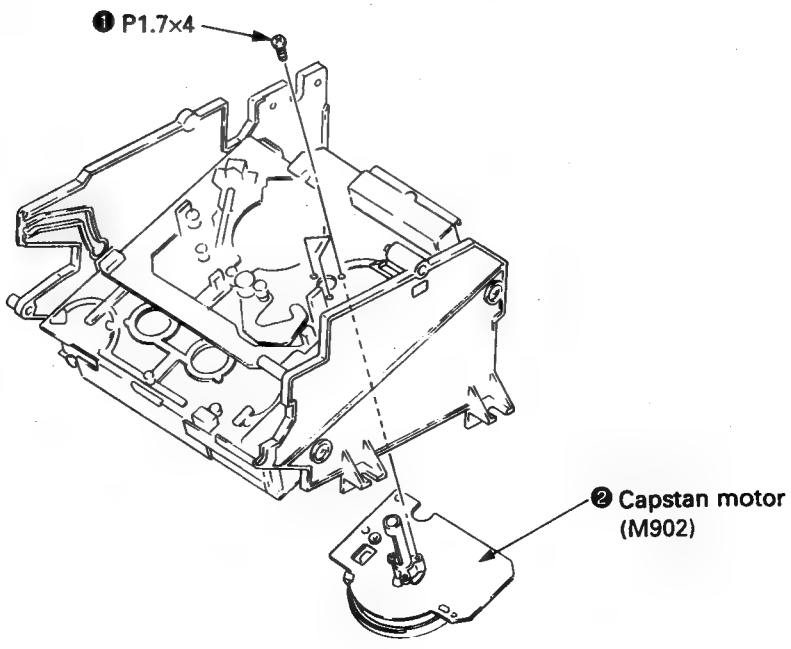


DRUM DRIVE BOARD, DRIVING CHASSIS

❶ Remove the lead wires from connectors on the drum drive board.



CAPSTAN MOTOR (M902)



SECTION 3
ADJUSTMENTS

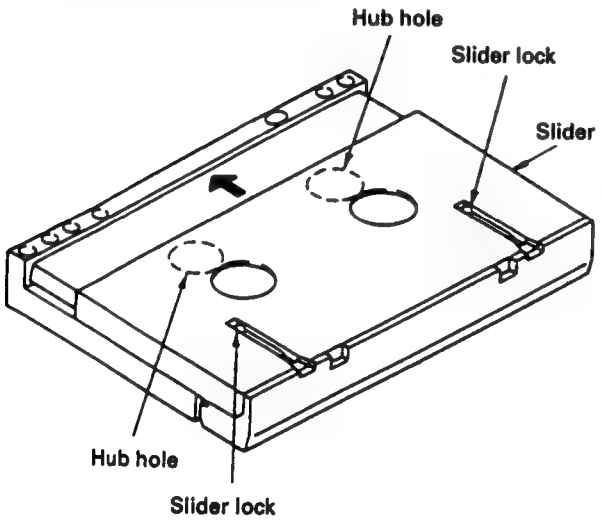
Notes When Making Adjustments

1. Adjustments should be performed in the order listed.
2. Use the following test tapes :
   TY-7111X (8-909-823-00) ..... Level
   TY-7251 (8-909-813-00) ..... Tracking
   TY-7551 (8-909-814-00) ..... Functions
   TY-30B (8-892-358-00) ..... Blank

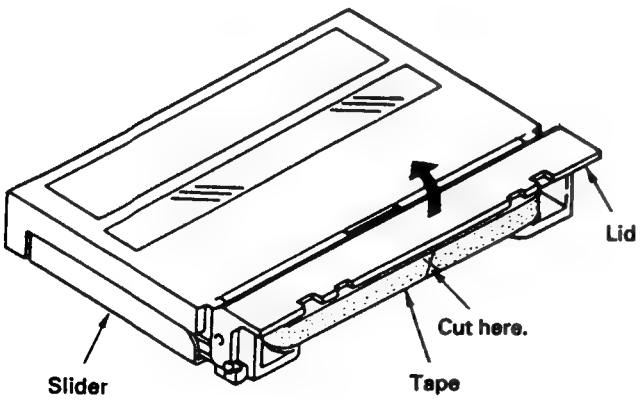
   Use the following torque meter:
   TW-7131 (8-909-708-71) ..... FWD

3. Switches and controls should be set as follows unless otherwise specified.
   TIMER switch : OFF
   REC MODE switch : LONG
   INPUT switch : COAXIAL
   REC LEVEL control : Min.
   LEVEL (PHONES) control : Min.

4. Creating an end sensor cassette
   (1) Press the tape slider lock and move the slider in the direction indicated by the arrow.



   (2) Open the lid and cut the tape.



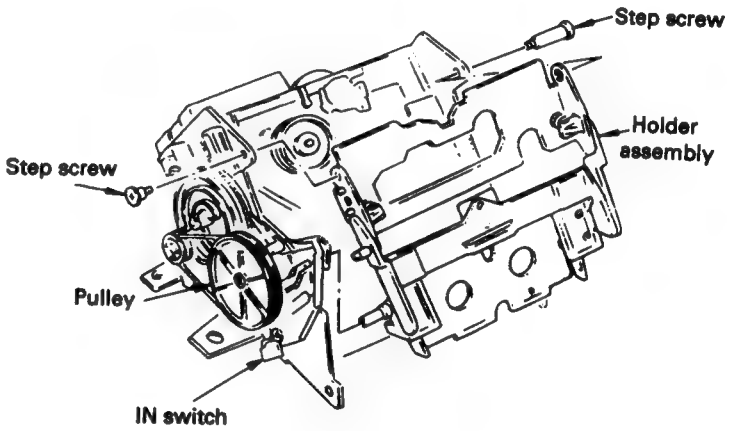
   (3) Turn the hubs until the tape is completely inside the cassette (both T and S sides).
   The end sensor cassette for end sensor adjustment is now ready for use.

5. Cleaning of the Revolving Drum
   (1) Fold a chamois (2-034-697-00) or a knit cloth into 4 or more files, slightly impregnate it with a cleaning liquid (9-919-573-00), and softly touch the drum with it and manually rotate the drum slowly counterclockwise by 2 to 3 turns for cleaning.
   (2) At that time, be careful not to move the chamois vertically to the head tip. Otherwise, the head tip may probably be damaged.

6. Be careful not to move RV1 and RV2 on the RF AMP board in the mechanism assembly.

7. To adjust the tape path and guides, remove the holder assembly as shown in the diagram and use the DAT holder jig (J-8000-002-A). This will make it easier to perform adjustments.

   - First turning the pulley counterclockwise to put it in loading out status will make removal and reattachment of the holder assembly easier.
   - To perform adjustments, turn the pulley clockwise to put it in loading in status, load the cassette tape and set the IN switch to the ON position.



8. Test mode
   The test mode is effected by shorting TP (XTEST MAIN, XTEST SERVO and XTEST DISP) on the main board and the control switch board and GND.
   (1) Test mode (main · servo)
   Turn OFF the power switch, connect XTEST MAIN and XTEST SERVO on the main board to GND and perform the following adjustments.
   - Tape path fine adjustment
   - DPG adjustment
   - ATF pilot (GCA) checking
   - End sensor checking
   - FWD torque adjustment
   - FWD back tension checking and adjustment

   (2) Test mode (display)
   Remove the flexible board on DISPLAY board 10 seconds after the POWER is turned off, connect the XTEST DISP to the GND, and turn the POWER on, so that you can check the following FL display tube and panel switches.

Each grid of the FL display tube sequentially lights up while all tubes being lighted up finally.

⇓

Level meters go out one after one.

⇓

Press any of the remote controller for DAT in this state. Thus, all level meters go out. (It may sometimes occur that one or two meters remain lighting up according to switch setting at that time.)

⇓

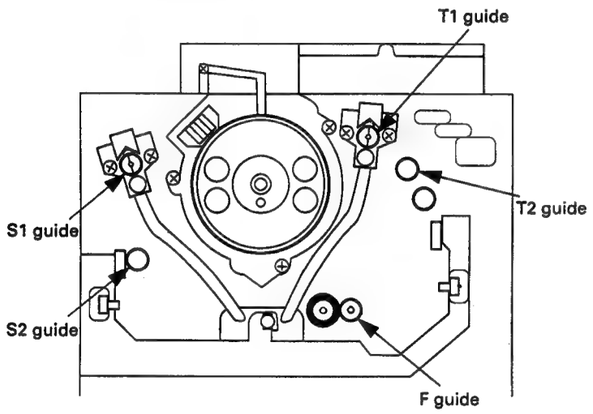
Everytime a switch on the panel is pressed, display tubes light up sequentially one after one. With all keys once pressed, all level meters go out.

- To reset the test mode, disconnect the wire shorting XTEST and GND. After completion of adjusting, be sure to reset the test mode.

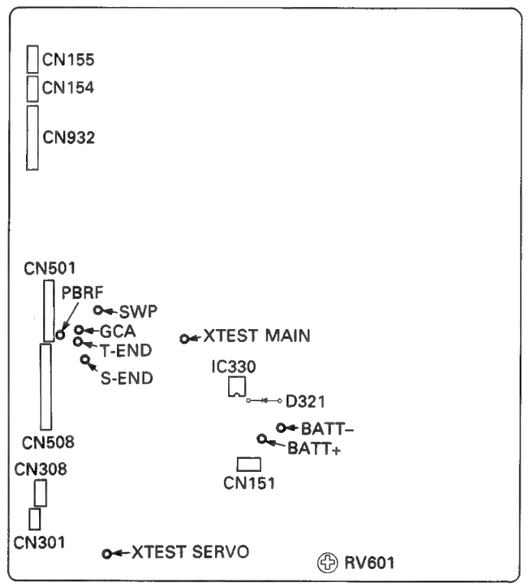
9. Check the following items for correct tape speed, after completion of adjusting.
   (1) Set the REC MODE switch to STANDARD and check for normal recording and playback. (× 1)
   (2) Set the REC MODE switch to LONG and check for normal recording and playback. (× 0.5)
   (3) With QUE (▶ + ▶▶) or REVIEW (▶ + ◀◀), check that qurrr, qurrr sound is heard. (× 3, × 8)
   (4) Check that correct time is displayed after FF (▶▶) or REV (◀◀). (× 16)
   (5) Check that SEARCH (▷▷I, I◁◁) is normal.

Adjust Parts Location

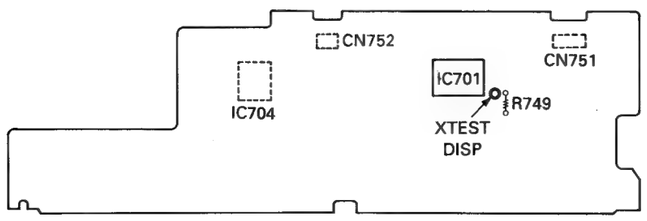
— Mechanism assembly —



— Main board —
(Component side)



— Control SW board —
(Conductor side)



3-1. ELECTRICAL ADJUSTMENTS

End Sensor Check

Perform the following adjustment when the holder has been removed or part of the mechanism deck section replaced.

Check Procedure:

1. Connect an oscilloscope to the test land SE (in the S side) and TE (in the T side) of the main board.
2. Actuate the test mode (main · servo), mount an end sensor cassette and effect the STOP (■) mode.
3. Check that p-p values of waveform of the oscilloscope satisfy the following.

In the S side: 300mVp-p or more

In the T side: 150mVp-p or more

FWD Torque Adjustment

Adjustment Procedure:

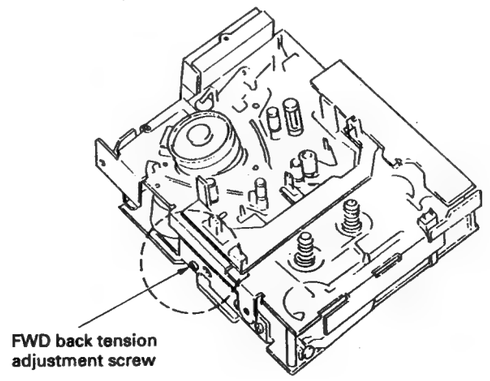
1. Put the set into the test mode (main · servo) and load the FWD torque meter TW-7131 (8-909-708-71).
2. Put the set into the PLAY (▶) mode.
3. Adjust RV601 so that the minimum value of FWD take up torque (take-up side rewinding torque) is between 10 – 11 g·cm (0.14 – 0.15 oz·inch). Also, make sure that the maximum reading does not exceed 16 g·cm (does not exceed 0.22 oz·inch).
4. Confirm that the value indicated by the torque meter is maintained for one full cycle.

Adjustment Point: MAIN board

FWD Back Tension Adjustment

Adjustment procedure:

1. Put the set into the test mode (main · servo) and load the FWD torque meter TW-7131 (8-909-708-71)
2. Put the set into the PLAY (▶) mode.
3. Turn the FWD back tension adjustment screw locked on the mechanical deck side so that the minimum value of FWD back tension torque (supply side) is between 4 – 5 g·cm (0.06 – 0.07 oz·inch).
   Also, make sure that the maximum reading does not exceed 8 g·cm (does not exceed 0.11 oz·inch).
   After completion of adjusting, be sure to apply screw lock.
4. Confirm that value indicated by the torque meter is maintained for one full cycle.



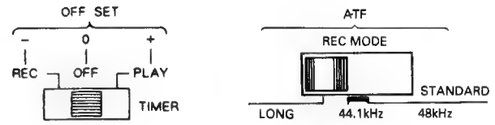
To tighten (clockwise) — back tension becomes larger.
To loosen (counterclockwise) — back tension becomes smaller.

Tape Path Fine Adjustments (× 1.5 FWD Mode)

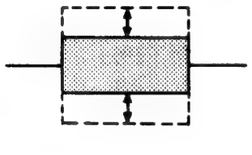
Perform the following adjustment when the drum has been replaced.

Adjustment Procedure :

1. Connect an oscilloscope CH-1 to TP (PBRF) and CH-2 to TP (SWP) on the main board.
2. Put the set into the test mode (main · servo) and load test tape TY-7252 (8-909-822-00).
3. Press the AMS (▷▷I) key.
   Each part of switches on Test Mode.

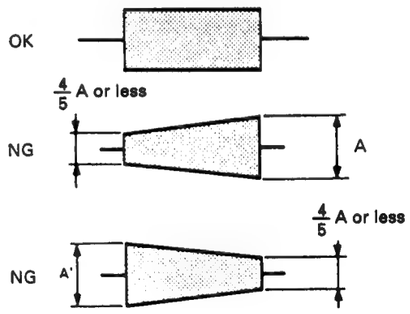


4. With the REC MODE switch set to STANDARD (ATF: OFF) and the TIMER switch set to PLAY or REC (OFFSET: + or –), fine adjust the S1 and T1 guides so that the oscilloscope RF signal waveform remains the same when high-low is repeated.



* Finish the adjustment by screwing in.

5. Check the RF signal waveform with the REC MODE switch set to LONG (ATF: ON) and the TIMER switch set to PLAY or REC (OFFSET: + or –).



6. Check the RF signal waveform with the REC MODE switch set to LONG (ATF: ON) and the TIMER switch set to PLAY or REC (OFFSET: 0).
   (1) Confirm theat the RF signal waveform peak value (B) is 60 mV or more.

(2) Confi
flat pc

7. When th
repeat ite

Adjustment

DPG Adjus

Perform the
been replace

Adjustment

1. Connect
on the m
signal is i
2. Put the se
7252 (8-
3. Set the R
switch to
4. Press the
5. Press the
the oscill
(Hold th
perform
0.2 secon

ATF Pilot

Perform this
cassette.

Check Proc

1. Connect
CH-2 to
inverted,

2. Put the se
7111 (8-

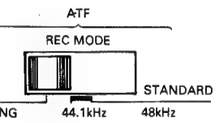
.5 FWD Mode)

n the drum has been replaced.

TP (PBRF) and CH-2 to TP

servo) and load test tape TY-

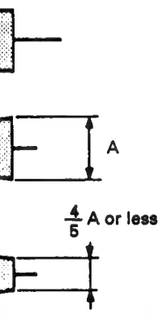
e.



o STANDARD (ATF: OFF)
Y or REC (OFFSET: + or –),
hat the oscilloscope RF signal
high-low is repeated.

g in.

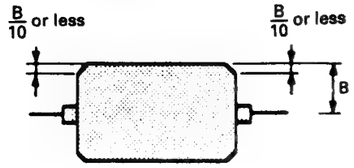
n the REC MODE switch set
R switch set to PLAY or REC



n the REC MODE switch set
R switch set to PLAY or REC

veform peak value (B) is 60

(2) Confirm that the undershoot level of the RF signal waveform's flat portion is within 10%.



7. When the measured values are not within the above toleranc repeat items 3 – 6 above.

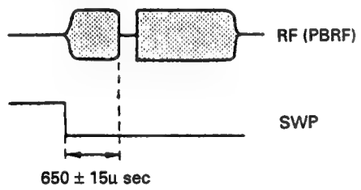
Adjustment Point: mechanism assembly

DPG Adjustment

Perform the following adjustment without fail when the drum has been replaced.

Adjustment Procedure:

1. Connect oscilloscope CH-1 to TP (PBRF) and CH-2 to TP (SWP) on the main board. (Use CH-2 as the trigger. When the CH-2 signal is inverted, the trailing edge can be used for synchronization.)
2. Put the set into the test mode (main • servo) and load test tape TY-7252 (8-909-822-00).
3. Set the REC MODE switch to LONG (ATF: ON) and the TIMER switch to OFF (OFFSET: 0).
4. Press the AMS (▷▷I) key.
5. Press the ◀◀ and ▶▶ keys as appropriate so that the gap between the oscilloscope SWP and RF signals becomes 650 ± 15 µsec. (Hold the ◀◀ and ▶▶ keys down for more than 1 second to perform rough adjustment. Hold them down for approximately 0.2 seconds for fine adjustment.)

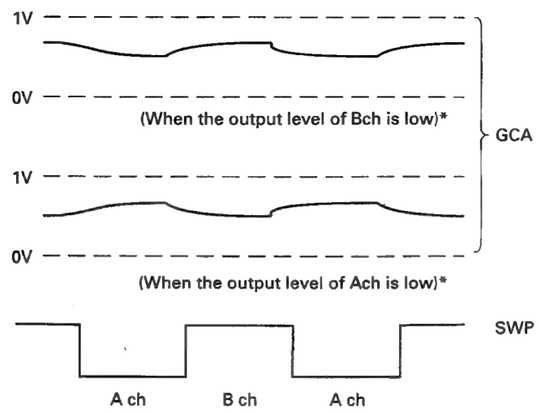


ATF Pilot (GCA) Check

Perform this adjustment after cleaning the heads with a cleaning cassette.

Check Procedure:

1. Connect oscilloscope CH-1 to TP (GCA: Gain Control Amp.) and CH-2 to TP (SWP) on the main board. (When the CH-2 signal is inverted, the trailing edge can be used for synchronization.)
2. Put the set into the test mode (main • servo) and load test tape TY-7111 (8-909-812-00).
3. Actuate the PLAY (▶) mode and check that the GCA waveform on the oscilloscope is as follows.



* Slightly changes depending on the state of the head. NG if the GCA waveform is 1V or more or equal to the GND level.

3-2. CHECKS FOR DATE FUNCTION

Clock IC Back-up Check

- When there is the short-circuit position on the pattern around the lithium battery (BAT301) or the clock IC (IC330) or disconnecting CN151 on removing the front panel assembly the clock is reset. (In spite of pressing PRESENT button, the data indication becomes "– –Y – –M – –D" "– –H – –M – –S")
  At this time, check the back-up function by the procedures given below.

(1) Connect DC voltmeter to TP (BATT+) and TP (BATT –) on the main board.
(2) When the power is off, the voltage value of the item (1) should be less than +30 mV.
(When the voltage value becomes +30 mV or more, Check around IC330 or replace IC330.)
(3) When the power is on, the voltage value of the item (1) should be less than 0 mV (– (minus) indication).
(When the voltage value becomes + (plus) indication, Check around D321 or replace D321.)
(4) When the above voltage values are normal, set the preset date and time (year, month, day, day of the week, hour, minute, second) according to the instruction manual.
(5) After setting the time on the item (4), turn power off and turn power on several seconds later, and check the clock works normally.

Back-up Battery Replacement

The life of the back-up battery under normal use (normal temperature, normal humidity) is approximately ten years or more. (On the instruction manual, described "approximately seven years".)
Be careful about the following points on the battery replacement.

- Repair the cause of the battery wastage by performing mentioned above "Clock IC Back-up Check".
- The open-circuit voltage of the replaced battery is 3.0 V or more as the new one, and when it is 2.0 V or less, it is completely consumed, replace it with new one.
- After the battery replacement, perform "Clock IC Back-up Check" again and set the time.

Clock Frequency Adjustment

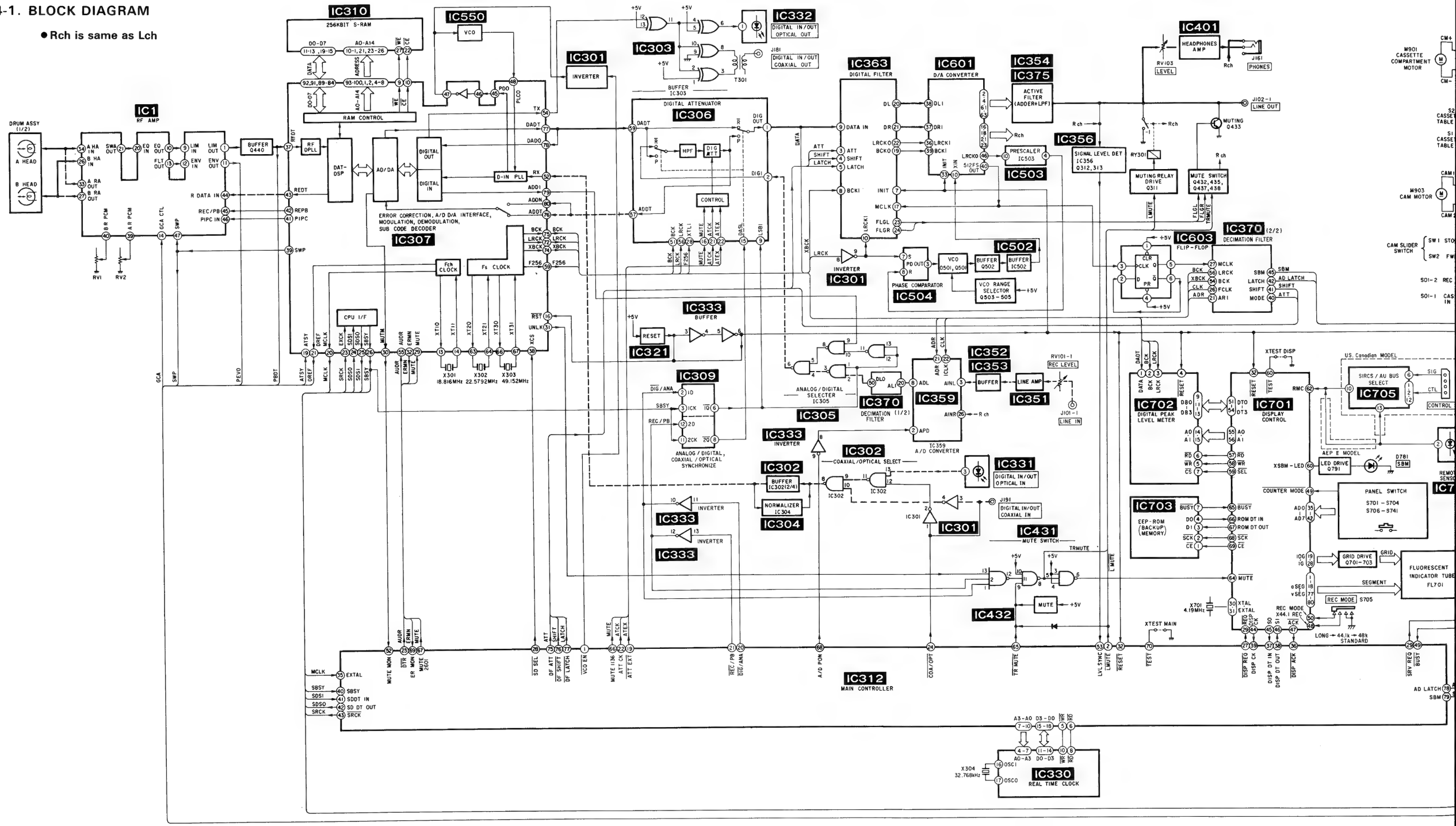
Adjustment Procedure:

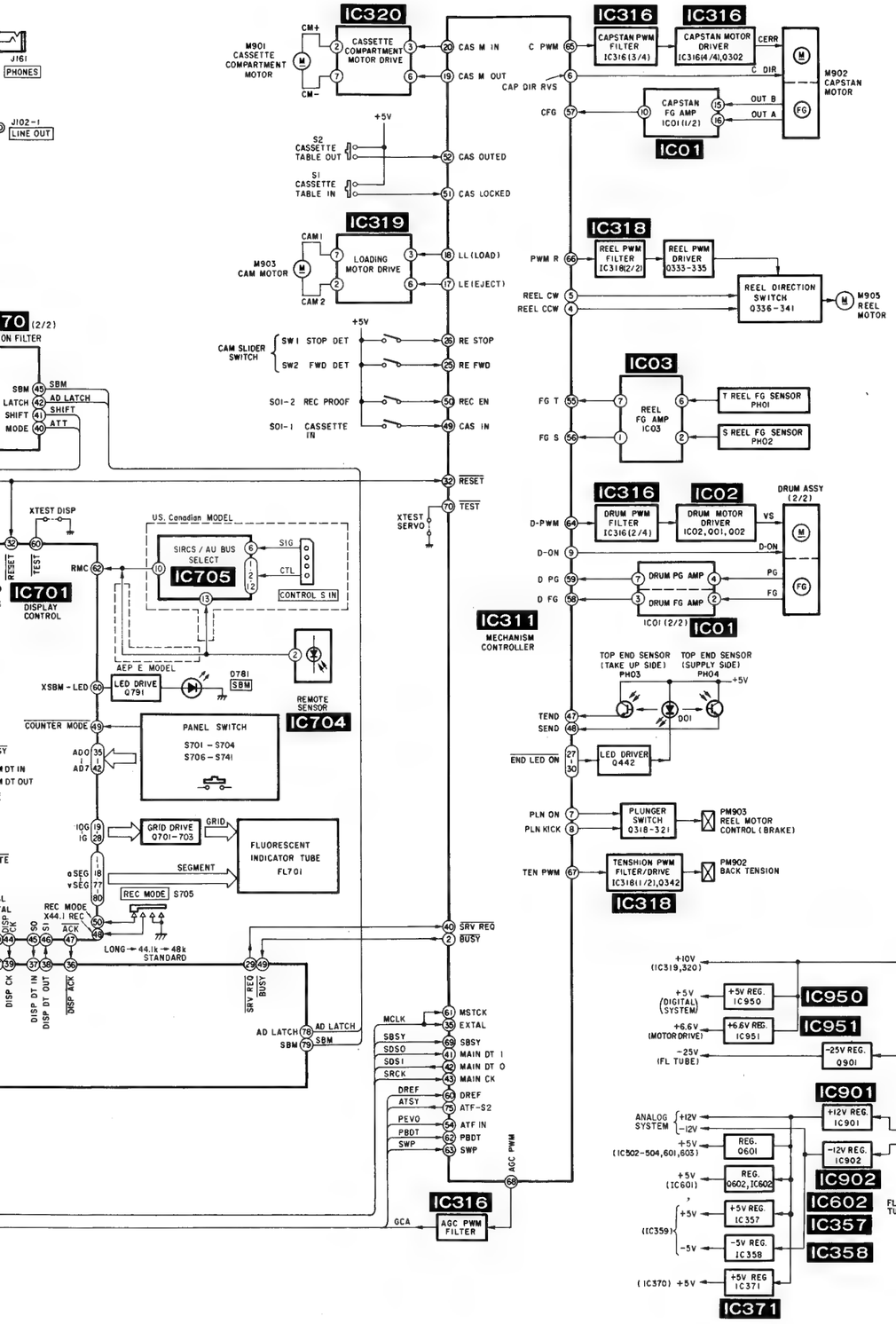
1. Connect a frequency counter to pin ⑮ of IC330 and GND on the main board.
2. Turn power on and confirm that the reading on the frequency counter is 2048.00 ± 0.02 Hz. (in normal temperature)
3. Perform "Clock IC Back-up Check" described above.

* Time setting procedure described on page 9.

4-1. BLOCK DIAGRAM

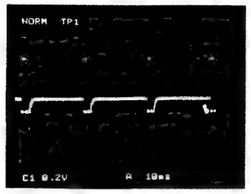
- Rch is same as Lch



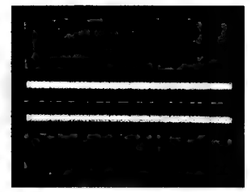


4-2. WAVEFORMS

❶ FL701 ⑪-⑳pin (1G-20G)
32Vp-p, 2.5ms



❻ IC701 ㊻pin (SI), IC312 ㊳pin (DISP DT O)
5.1Vp-p, 0.64ms

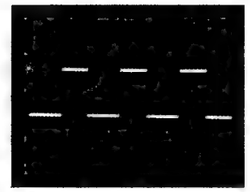


⓫ IC1 ①pin, Q440 Base (PBDT)
PLAY mode 0.93Vp-p

⓰ IC307 ㊽pin, IC306 ㊾pin (DADO)
PLAY mode
5.2Vp-p, 5µs

❷ IC701 ⑲-㉘pin (10G-1G)
34Vp-p, 2.45ms

❼ IC702 ①pin (DATA)
6.4Vp-p, 0.3µs

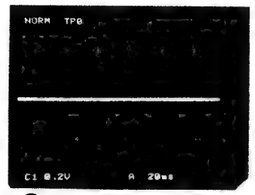


⓬ IC01 ⑩pin, IC311 ㊼pin (CFG)
PLAY mode
5Vp-p, 1.5ms

⓱ IC307 ㊻pin, IC306 ㊼pin (ADDT)
REC mode
5.2Vp-p, 5µs

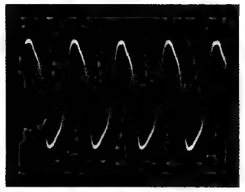
❸ IC701 ㉗-㉚pin, ①-⑱pin (a-v)
38Vp-p, 1.2ms

❽ IC702 ②pin (BCK)
5.2Vp-p, 0.3µs



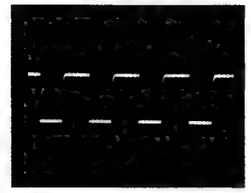
⓭ IC01 ⑦pin, IC311 ㊾pin (DPG)
PLAY mode
5Vp-p, 10ms

⓲ IC307 ㊺pin (BCK)
5.3Vp-p, 0.1µs



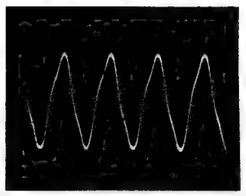
❹ IC701 ㉚pin (XTAL)
5.5Vp-p, 2.5µs

❾ IC702 ③pin (LRCK)
5.7Vp-p, 20µs

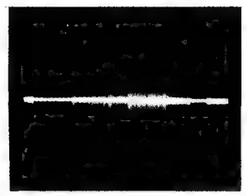


⓮ IC01 ③pin, IC311 ㊽pin (DFG)
PLAY mode
5Vp-p, 1.25ms

⓳ IC307 ㊹pin, IC359 ⑮pin (XBCK), IC363 ⑧pin (BCKI)
5.3Vp-p, 0.1µs

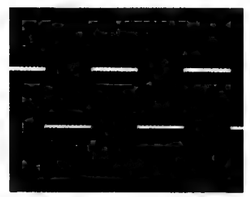


❺ IC701 ㉛pin (EXTAL)
5.5Vp-p, 2.5µs



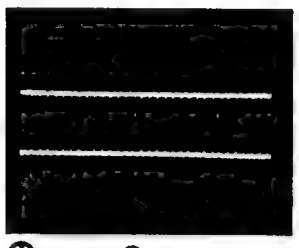
❿ IC1 ㉗ ㉝pin (HEAD)
REC mode 4.2Vp-p

⓯ IC03 ①, ⑦pin, IC311 ㊻, ㊺pin (FGS, FGT)
FF, REW mode 4.1Vp-p, 0.1ms

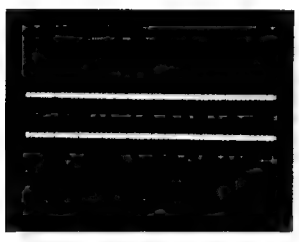


⓴ IC307 ㊷pin (LRCK)
5.1Vp-p, 5µs

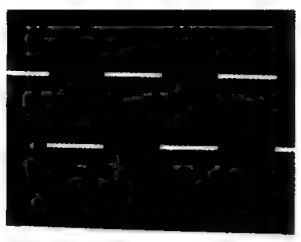
㉑ IC307 ㊾pin, IC359 ⑭pin (LR03)
5.1Vp-p, 5µs



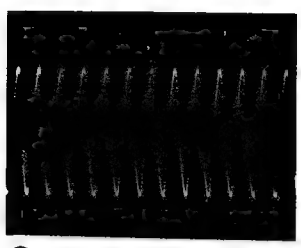
㉖ IC307 ㊹pin (TX)
PLAY mode
5.3Vp-p, 0.2s



㉛ IC307 ㊲pin, IC311 ㊷pin (RFDT)
PLAY mode
1Vp-p, 10ms

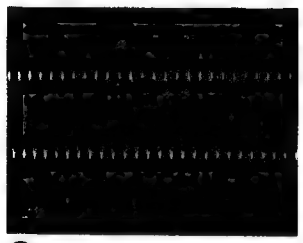


㊱ IC333 ②pin, IC363 ⑩pin (LRCKI)
5Vp-p, 5µs

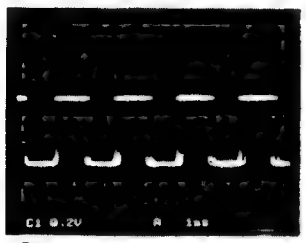


㊶ IC601 ㊵pin, IC363 ⑰pin (512FS)
3Vp-p, 50ns

㊻ Q502 Source (VCO)
1Vp-p, 50ns

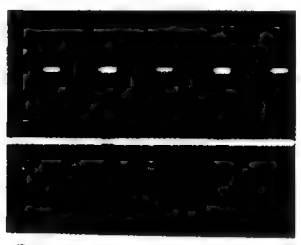


㉒ IC307 ㊼pin (XT3I)
462mVp-p, 50ns

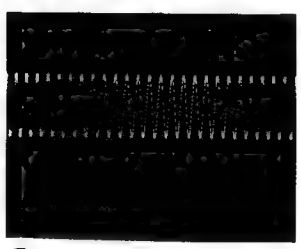


㉗ IC307 ㊷pin (RX)
5.2Vp-p, 0.5ms

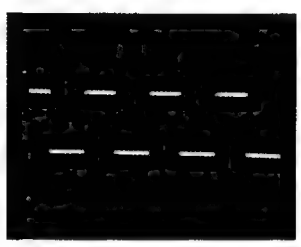
㉜ IC307 ㉑pin, IC311 ㊵pin (DREF)
5Vp-p, 5ms



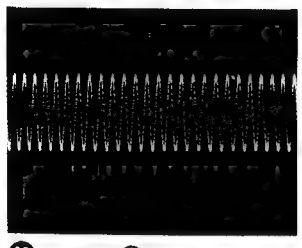
㊲ IC306 ①pin, IC363 ⑨pin (DATAI)
5.3Vp-p, 5µs



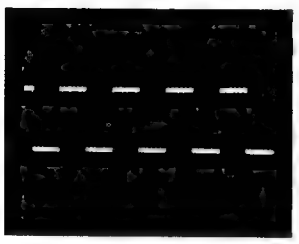
㊷ IC601 ⑩pin (1024FS) IC502 ⑤pin
1.4Vp-p, 50ns



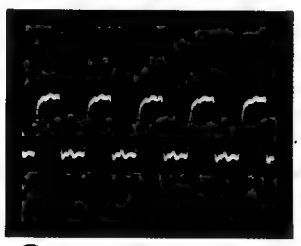
㊼ IC311 ㊻pin (D PWM)
PLAY mode
5Vp-p, 10µs



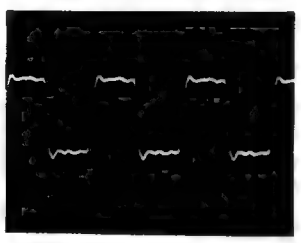
㉓ IC307 ㊻pin (X3TO)
1.7Vp-p, 50ns



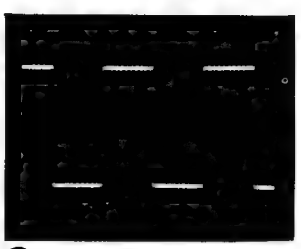
㉘ IC307 ㊺pin (LRCK)
5.6Vp-p



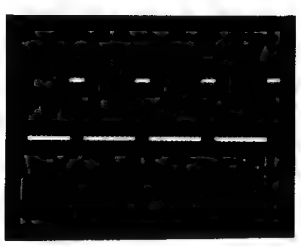
㉝ IC307 ⑳pin, IC311 ㉟pin, IC312 ㉟pin (MCLK)
5.8Vp-p, 50ns



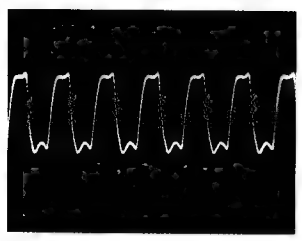
㊳ IC363 ⑳, ㉑pin (DL, DR)
6Vp-p, 50ns



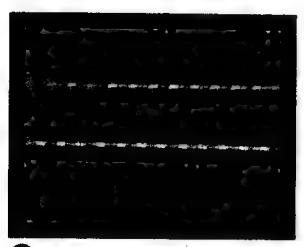
㊸ IC504 ⑦pin (LRCKI)
5.5Vp-p, 5µs



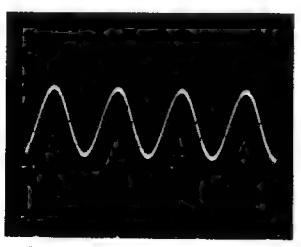
㊽ IC311 ㊺, ㊻pin (C PWM, PWMR)
PLAY mode
5Vp-p, 10µs



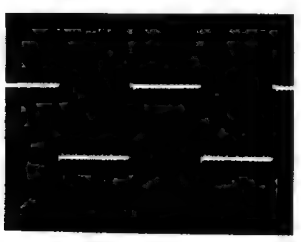
㉔ IC307 ㊾pin, IC359 ⑳pin (F256)
5.2Vp-p, 50ns



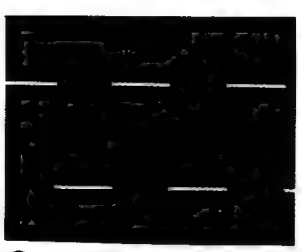
㉙ IC307 ㊸pin (REDT)
REC mode
5.3Vp-p, 0.5µs



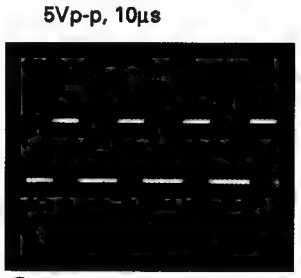
㉞ IC307 ⑭pin, (XT1I)
1.7Vp-p, 50ns



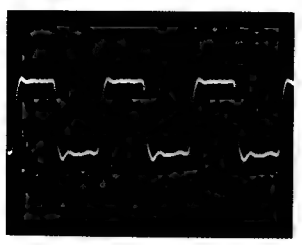
㊴ IC363 ㉒pin, IC601 ㊱pin (LRCK)
5.3Vp-p, 0.5µs



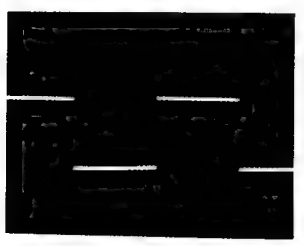
㊹ IC504 ⑧pin (1/512FS)
5.5Vp-p, 5µs



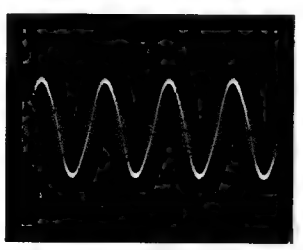
㊾ IC311 ㊼, ㊽pin (TEN PWM, AGC PWM
PLAY mode
5Vp-p, 10µs



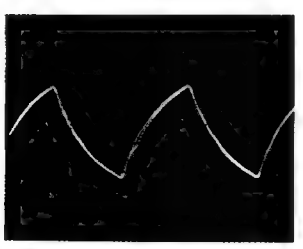
㉕ IC307 ㊽pin (F128)
5.4Vp-p, 50ns



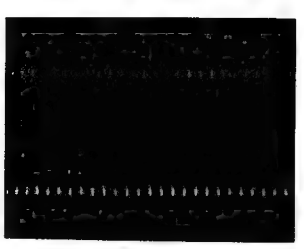
㉚ IC307 ㊴pin, IC311 ㊸pin (SWP)
PLAY mode
5.2Vp-p, 50ms



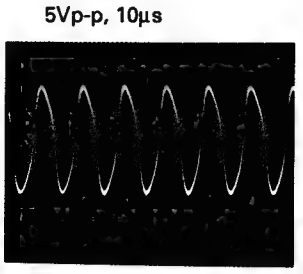
㉟ IC307 ⑬pin, (XT1O)
2.7Vp-p, 50ns



㊵ IC503 ⑩pin, IC601 ㊸pin (128FS)
5.0Vp-p, 50ns



㊺ Q501 Source (VCO)
1.3Vp-p, 50ns



㊿ IC330 ⑰pin (XOUT)
1.85Vp-p, 20µs

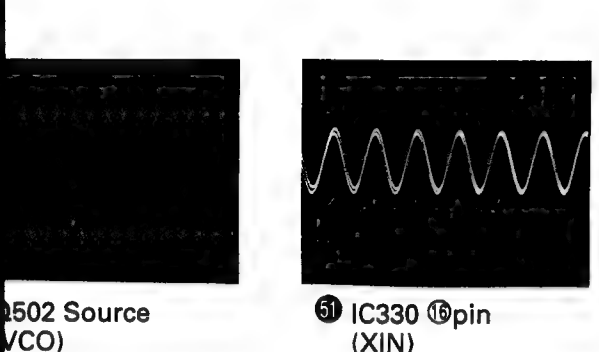
2502 Source
VCO)
Vp-p, 50ns

51 IC330 16pin
(XIN)
925mVp-p, 20µs

C311 64pin
D PWM)
LAY mode
Vp-p, 10µs

52 IC330 15pin
(XINTR)
5.2Vp-p, 0.1µs

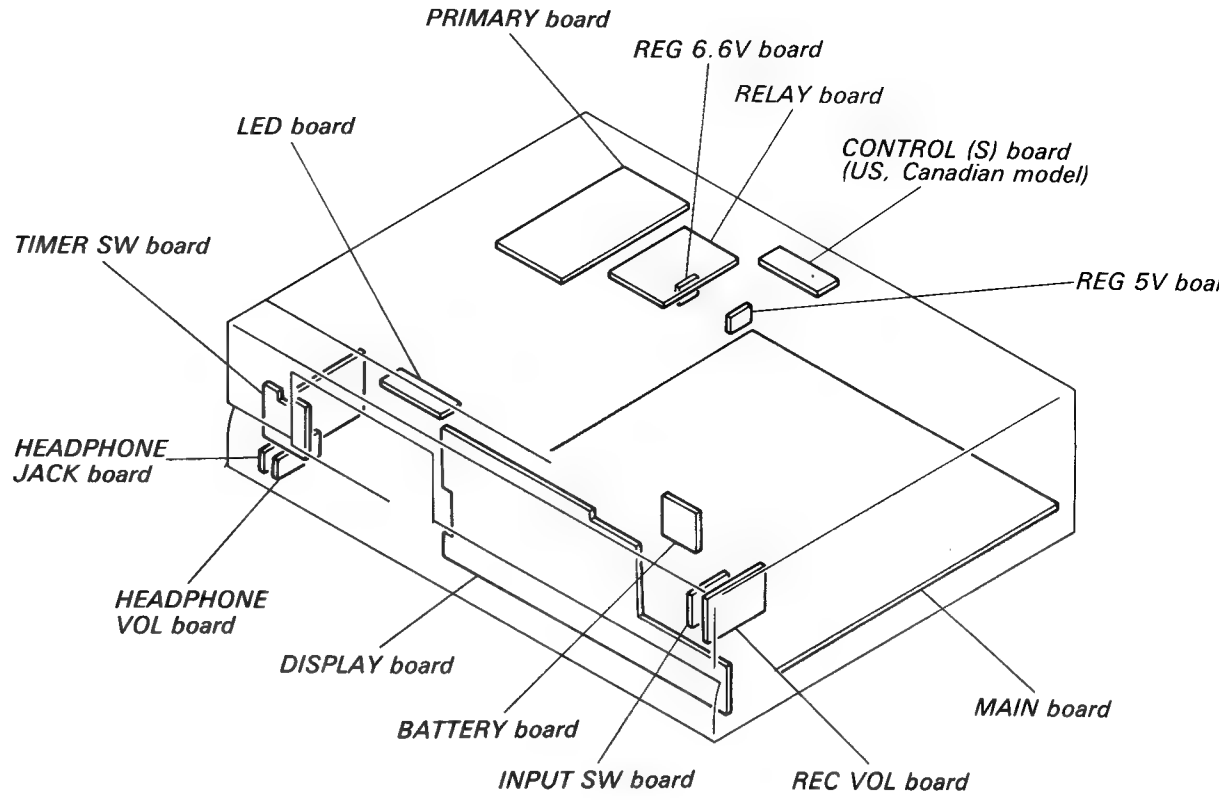
C311 65, 66pin
C PWM, PWMR)
LAY mode
Vp-p, 10µs



C311 67, 68pin
TEN PWM, AGC PWM)
LAY mode
Vp-p, 10µs

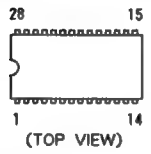
C330 17pin
KOUT)
85Vp-p, 20µs

4-3. CIRCUIT BOARDS LOCATION

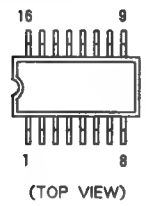


4-4. SEMICONDUCTOR LEAD LAYOUTS

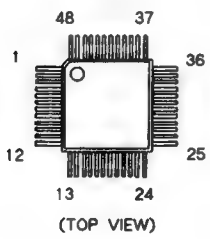
CS5339-KP
CXD8493P



CX20115A
SN74HC4020ANS



CXA1364R



CXD1136Q
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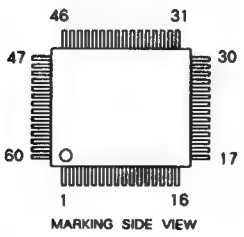
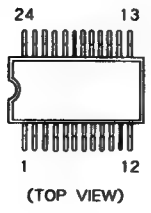


CXD2567M



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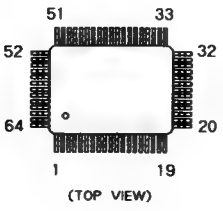

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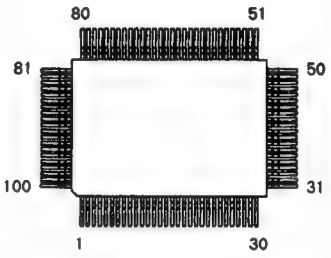

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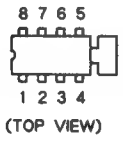

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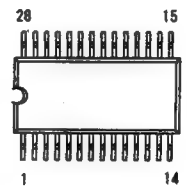

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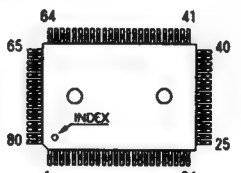
CXP80524-091Q
CXP80524-092Q



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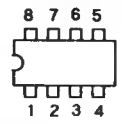
LF412CN
M5238P
NE5532P
RC4558P
µPC358C
µPC4558C



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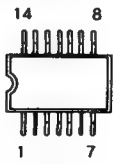
SN74HC04ANS
SN74HC10AN
SN74HC14AN
SN74HC74AN
SN74HC74ANS



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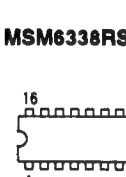
M54641L



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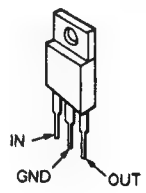

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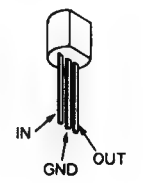

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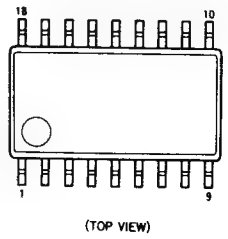
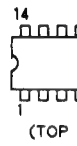


SN74HC0
SN74HCU
SN74HC8
SN74LS6
µPD4011



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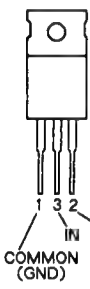
TA79012



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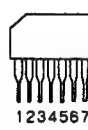

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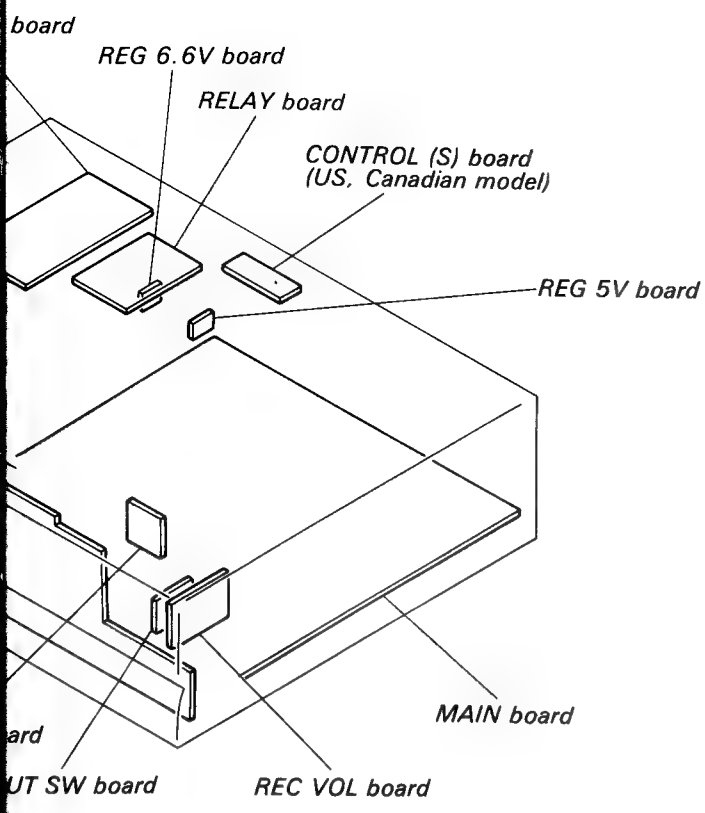

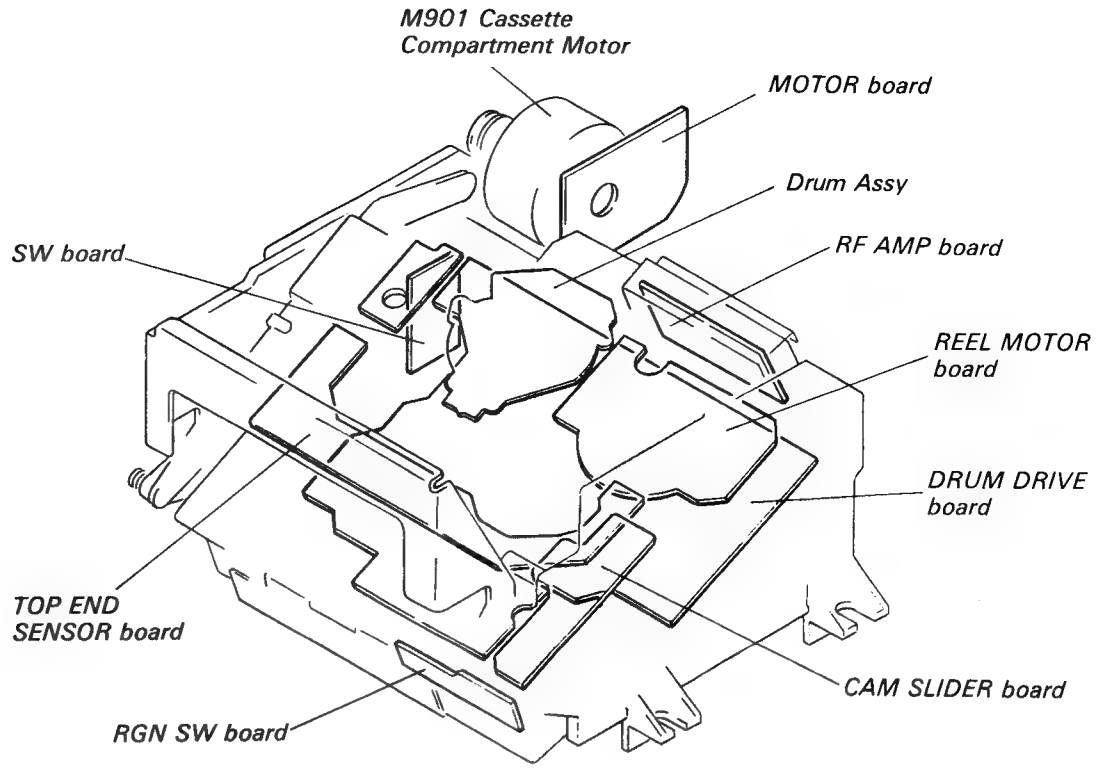

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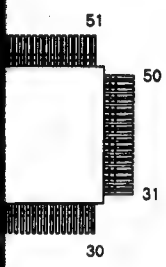

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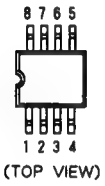

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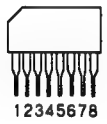

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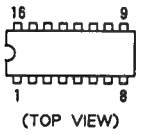

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TA7812S
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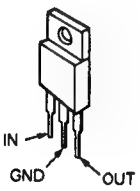

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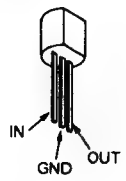

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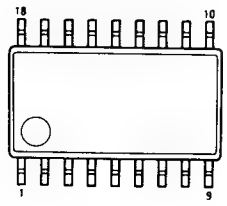

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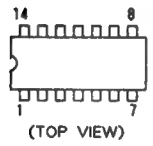

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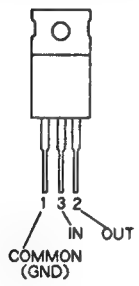

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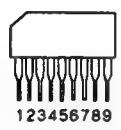

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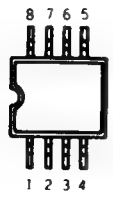

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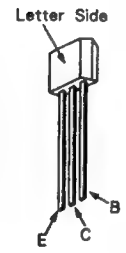

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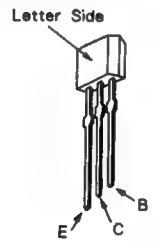

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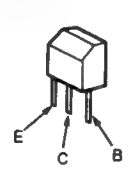

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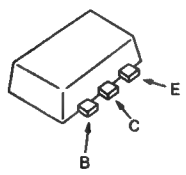

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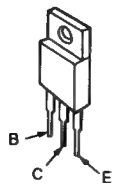
2SD2012



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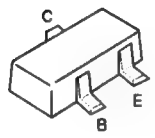

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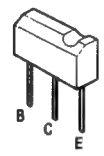

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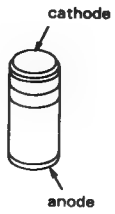
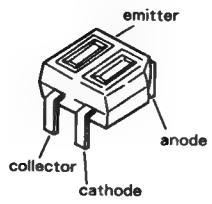
2SK241-GR

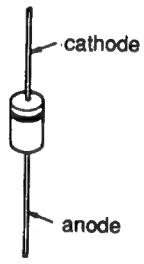
GL-453S



GP2S09-C



30DF2



HZS6A1L
HZS24-3L
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RD5.1JS-B2
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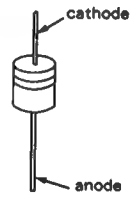
1SS168
1SS202-1
10E2N
11ES2



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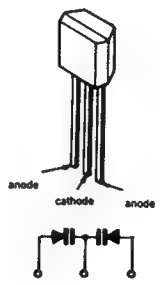
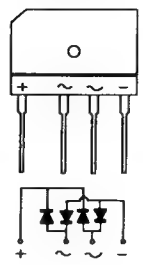
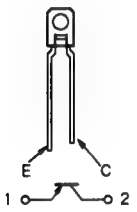


RBA406B

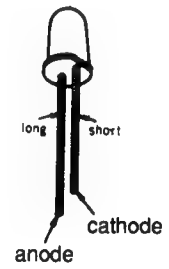


PT4850F



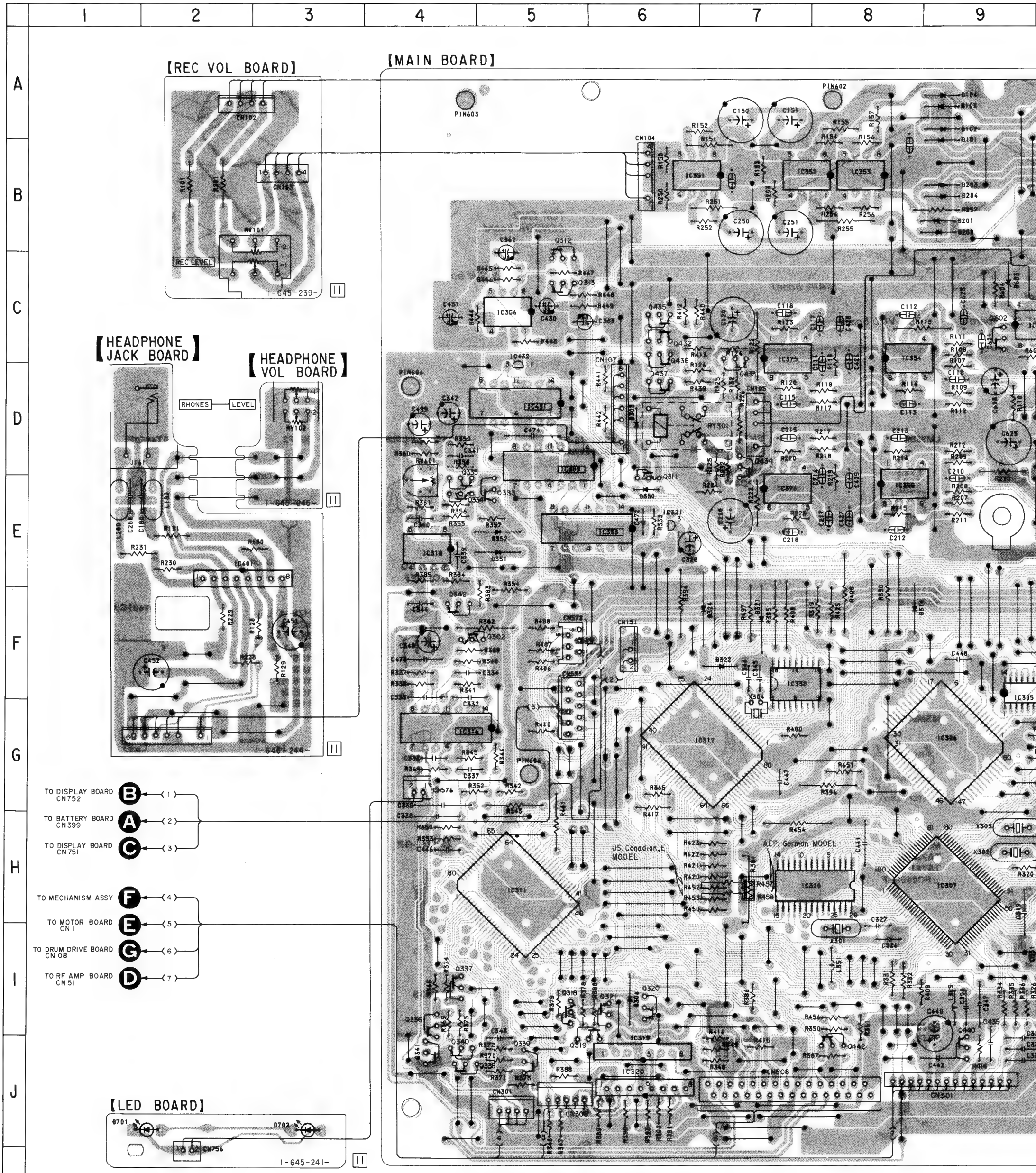
LN01401C(Q)-3-LF

SEL1410E

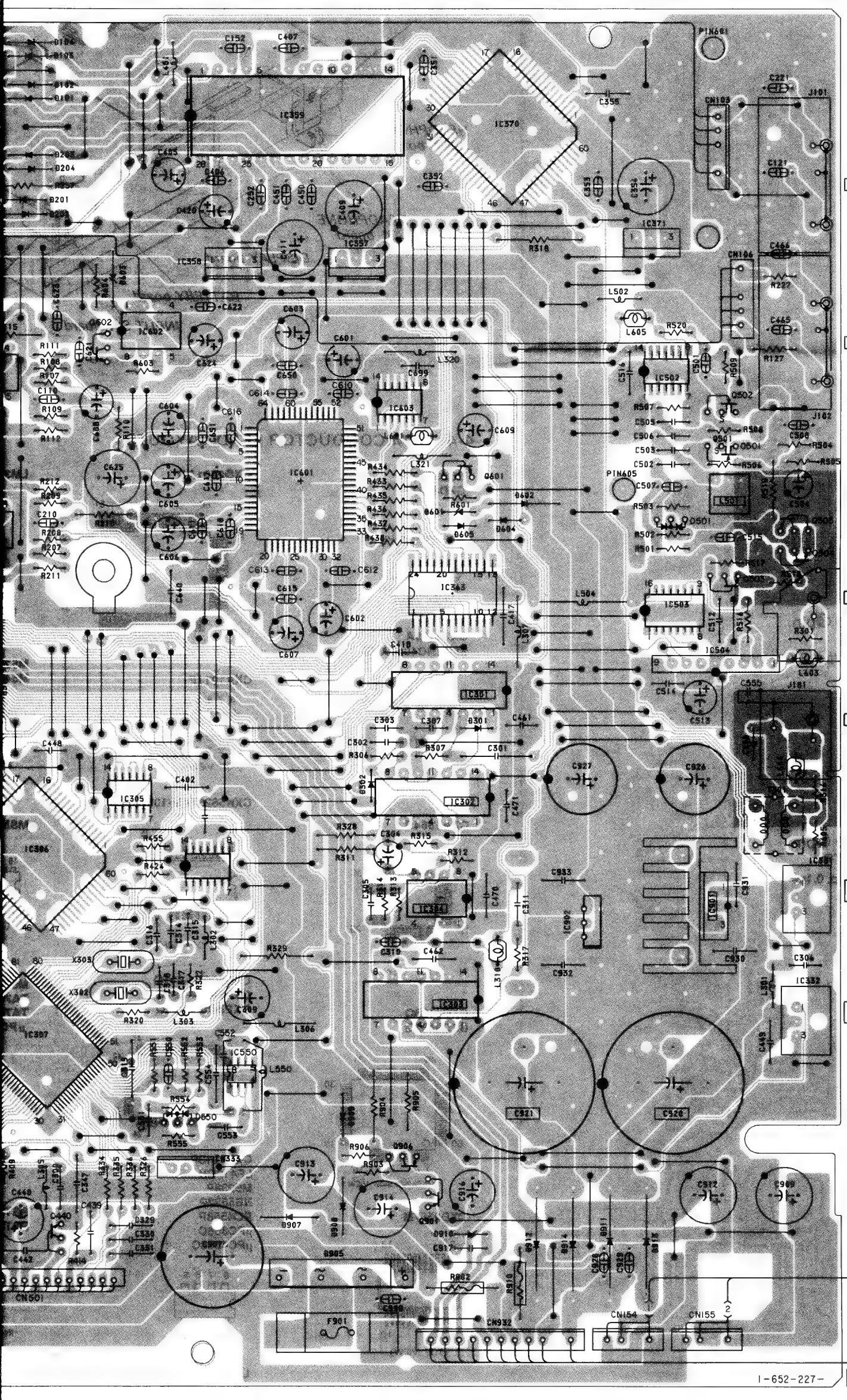


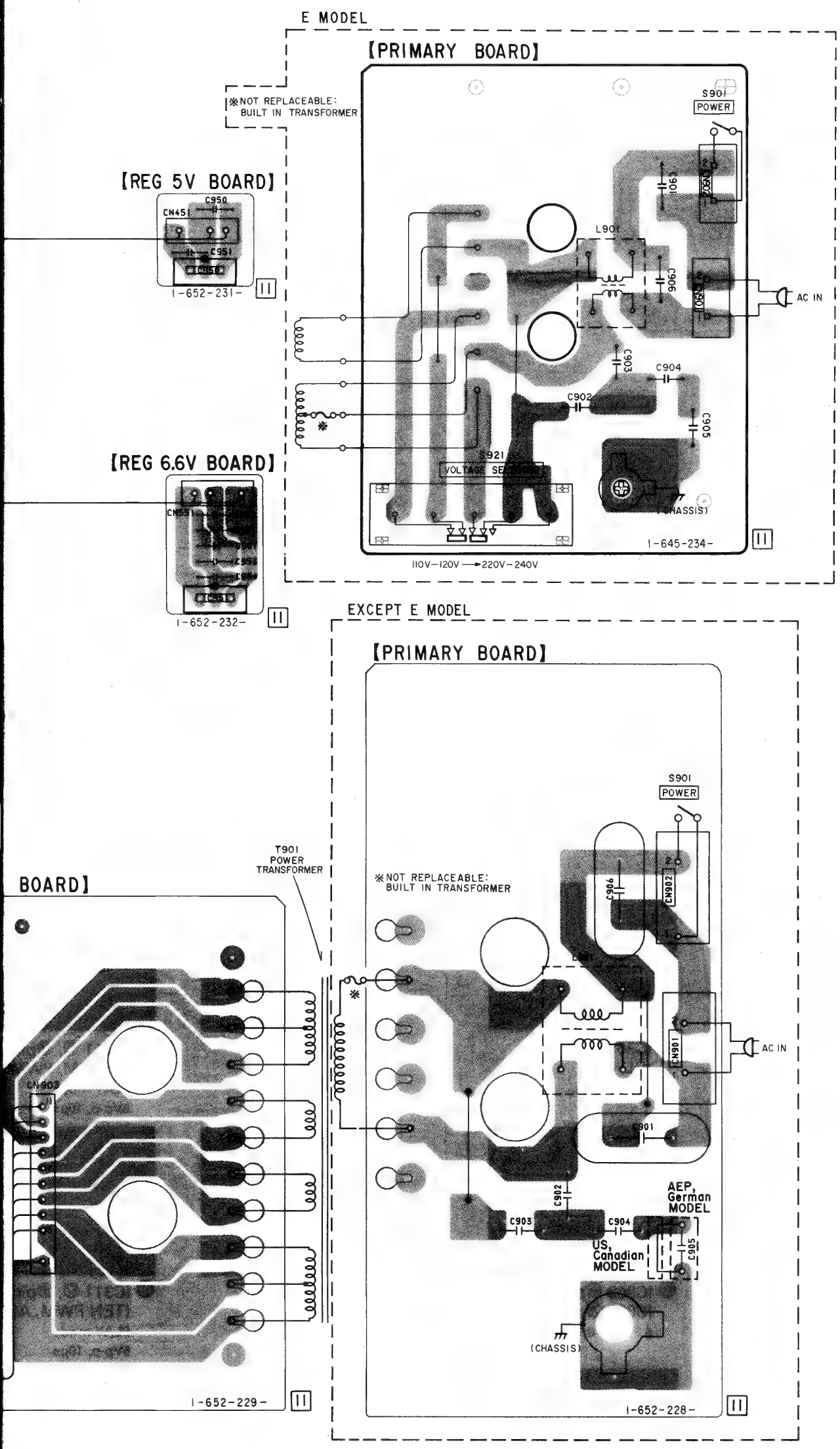
4-5. PRINTED WIRING BOARDS —MAIN Section—

● See page 25 for Circuit Boards Location and Semiconductor Lead Layouts.



9	10	11	12	13	14	15	16	17	1





- **Semiconductor Location**

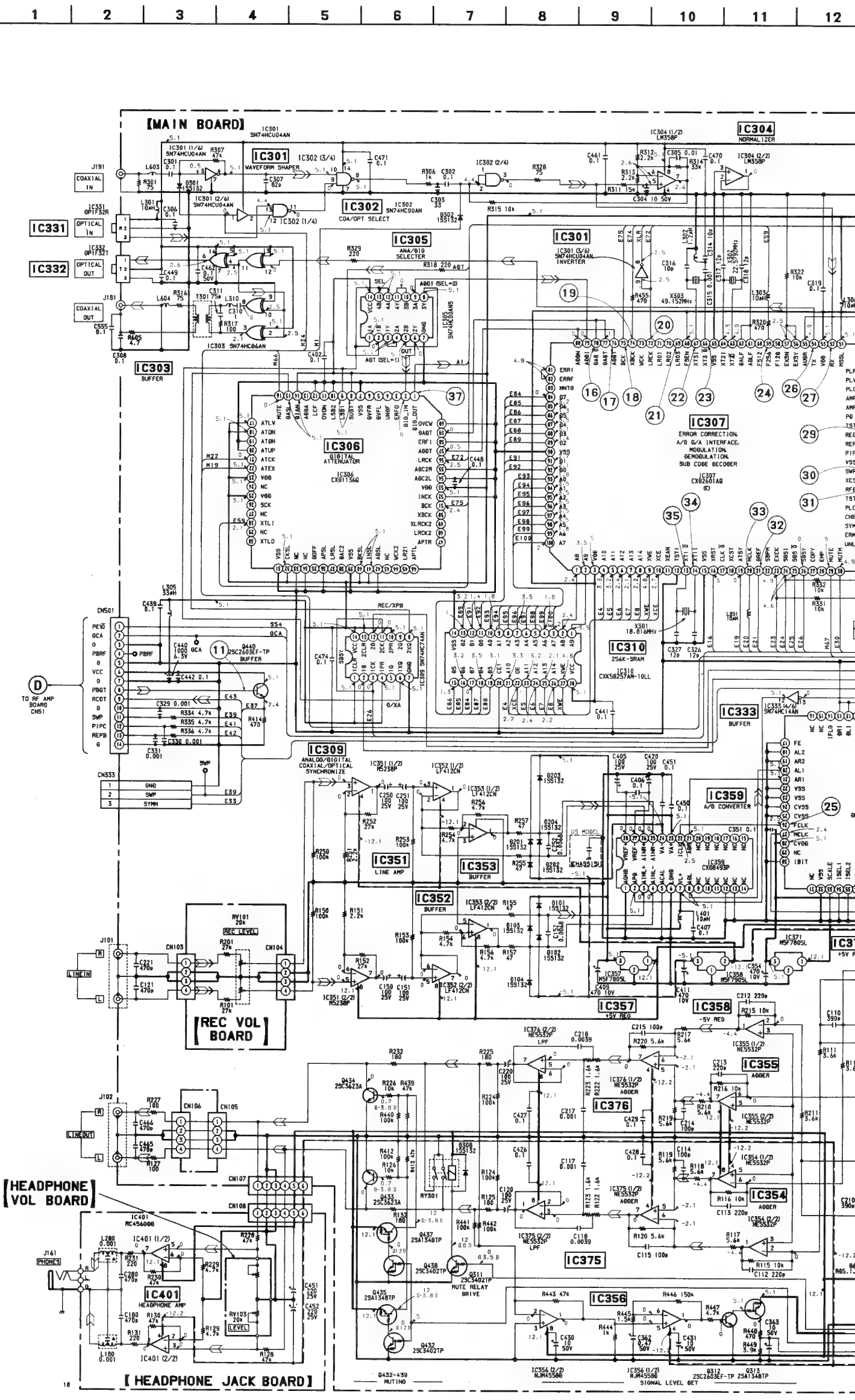
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D101	A - 8	IC305	G - 9	IC950	C - 17
D102	A - 8	IC306	G - 8	IC951	F - 17
D103	A - 8	IC307	H - 8		
D104	A - 8	IC309	D - 5	Q302	F - 4
D201	B - 9	IC310	H - 7	Q311	E - 6
D202	B - 9	IC311	H - 4	Q312	C - 5
D203	B - 9	IC312	G - 6	Q313	C - 5
D204	B - 9	IC316	G - 4	Q316	J - 5
D301	F - 12	IC318	E - 4	Q318	I - 5
D302	F - 11	IC319	J - 5	Q319	J - 5
D306	I - 6	IC320	J - 6	Q320	I - 6
D308	D - 6	IC321	E - 6	Q321	I - 5
D314	F - 8	IC330	F - 6	Q333	E - 5
D321	F - 7	IC331	G - 14	Q334	E - 4
D322	F - 6	IC332	H - 14	Q335	D - 4
D324	F - 6	IC333	E - 5	Q336	I - 4
D350	E - 6	IC351	B - 6	Q337	I - 4
D351	E - 4	IC352	B - 7	Q338	J - 4
D352	E - 4	IC353	B - 8	Q339	J - 5
D501	D - 13	IC354	C - 8	Q340	J - 4
D550	I - 10	IC355	E - 8	Q341	J - 4
D601	D - 12	IC356	C - 4	Q342	F - 4
D602	D - 12	IC357	C - 11	Q432	C - 6
D603	C - 9	IC358	C - 10	Q433	C - 7
D604	D - 12	IC359	A - 10	Q434	D - 7
D605	D - 12	IC363	E - 11	Q435	C - 6
D702	J - 3	IC370	A - 12	Q436	C - 1
D901	E - 17	IC371	B - 13	Q437	D - 6
D905	J - 11	IC375	C - 7	Q438	C - 6
D907	J - 11	IC376	E - 7	Q439	D - 6
D908	J - 11	IC401	F - 2	Q440	J - 9
D909	I - 11	IC431	D - 4	Q442	J - 8
D910	J - 12	IC432	C - 4	Q501	D - 14
D911	J - 13	IC502	C - 13	Q502	D - 14
D912	J - 13	IC503	E - 13	Q503	E - 14
D913	J - 13	IC504	E - 13	Q504	E - 14
D914	J - 13	IC550	H - 10	Q505	E - 14
		IC601	D - 11	Q601	D - 12
IC301	F - 12	IC602	C - 9	Q602	C - 9
IC302	G - 11	IC603	D - 11	Q901	I - 12
IC303	H - 12	IC901	G - 13	Q906	I - 12
IC304	G - 12	IC902	G - 12		

Notes on printed wiring board:

- o——: Indicated a lead wire mounted on the component side
- : Pattern from the side which enables seeing

4-6. SCHEMATIC DIAGRAM —MAIN Section—

● See page 22 for Waveforms and 43 for IC Block Dia



Notes on schematic diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- △ : Internal component
- % : Indicate a permissible margin
- ⊣W⊢ : Nonflammable resistor

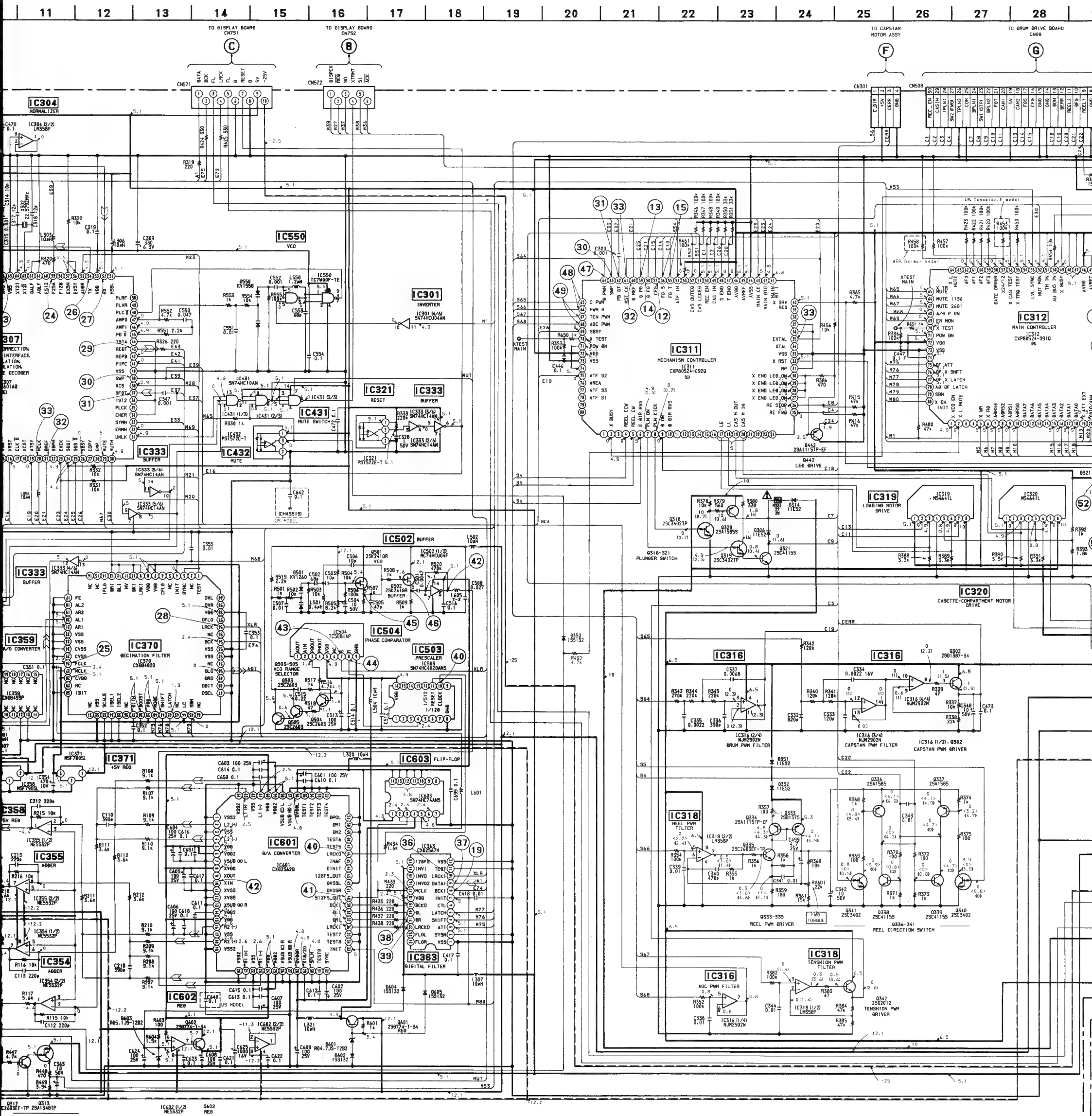
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

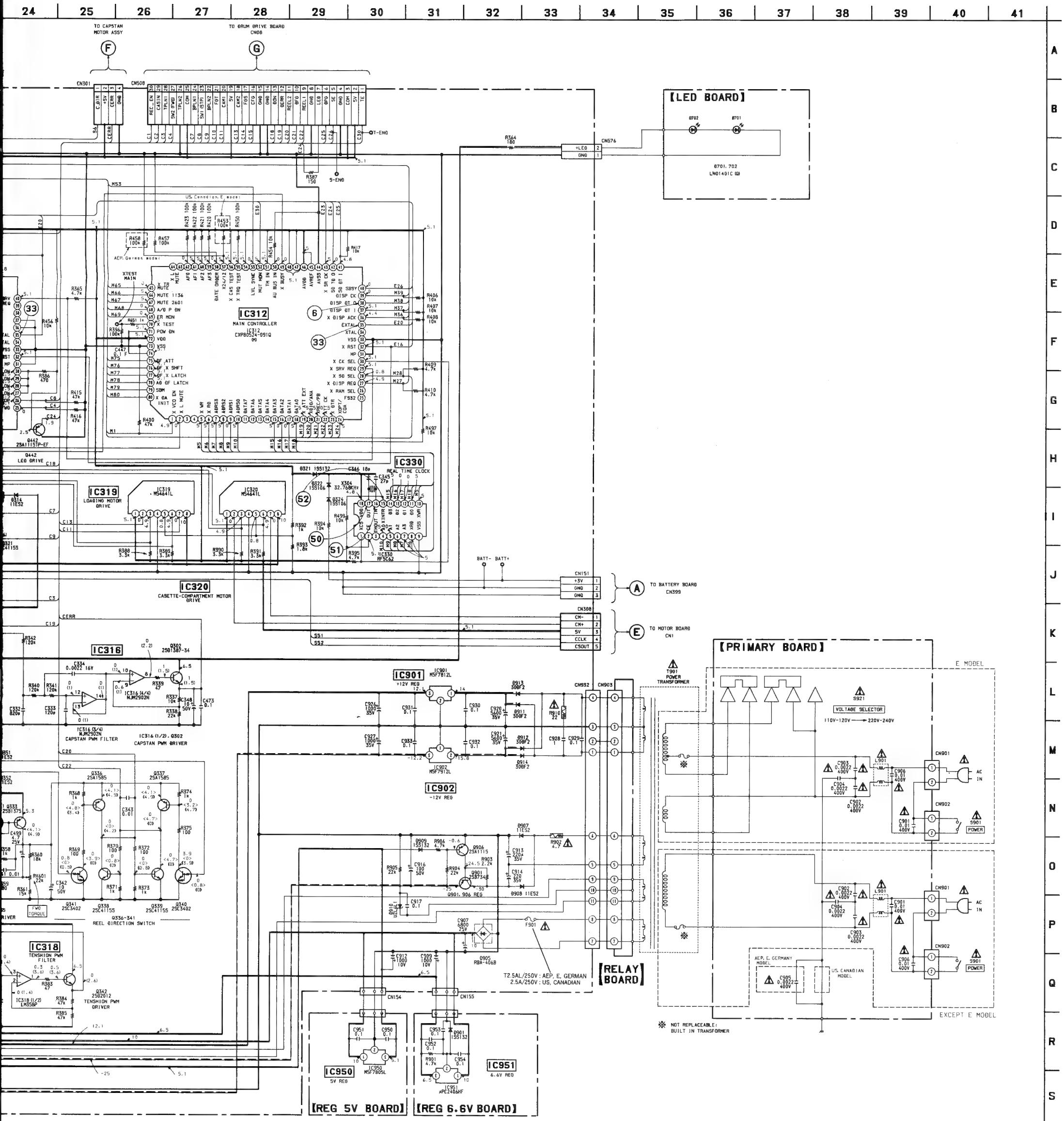
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

- ▬▬ : B+ Line
- ▪▪▪▪ : B− Line
- ▭ : Adjustment for repair
- Voltage are dc with respect to g conditions.

  No mark : Stop
  ( ) : PLAY
  (( )) : REC
  < > : FF
  << >> : REW
  [ ] : MOMENTARILY WHEN ▶▶
  [[ ]] : MUTING
- Voltages are taken with a VOM Voltage variations may be not tolerances.
- Circled numbers refer to wavef
- Waveforms are taken with a os Voltage variations may be not tolerances.
- Signal path
  ▷▷ : PB
  ▷▷ : REC

3 for IC Block Diagrams.




24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
A B C D E F G H I J K L M N O P Q R S
TO CAPSTAN MOTOR ASSY
TO DRUM DRIVE BOARD CN08
CN301
CN508
【LED BOARD】
CN576
D702
D701
D701, 702 LN01401C (Q)
IC312 MAIN CONTROLLER
IC312 CXP80524-091Q 00
IC330 REAL TIME CLOCK
IC319 LOADING MOTOR DRIVE
IC320 CASSETTE-COMPARTMENT MOTOR DRIVE
IC316 CAPSTAN PWM FILTER
IC316 (1/2), Q302 CAPSTAN PWM DRIVER
IC318 TENSHION PWM FILTER
Q342 2SD2012 TENSHION PWM DRIVER
Q336-341 REEL DIRECTION SWITCH
IC901 +12V REG
IC902 -12V REG
IC950 5V REG
IC951 6.6V REG
【REG 5V BOARD】
【REG 6.6V BOARD】
【RELAY BOARD】
【PRIMARY BOARD】
T901 POWER TRANSFORMER
S921 VOLTAGE SELECTOR
110V-120V 220V-240V
E MODEL
EXCEPT E MODEL
AEP, E GERMANY MODEL
US, CANADIAN MODEL
※ NOT REPLACEABLE: BUILT IN TRANSFORMER
T2.5AL/250V : AEP, E, GERMAN
2.5A/250V : US, CANADIAN
CN151
CN308
CN154
CN155
CN932
CN903
CN901
CN902
TO BATTERY BOARD CN399
TO MOTOR BOARD CN1
T-END
S-END
BATT- BATT+

Notes on printed wiring board:

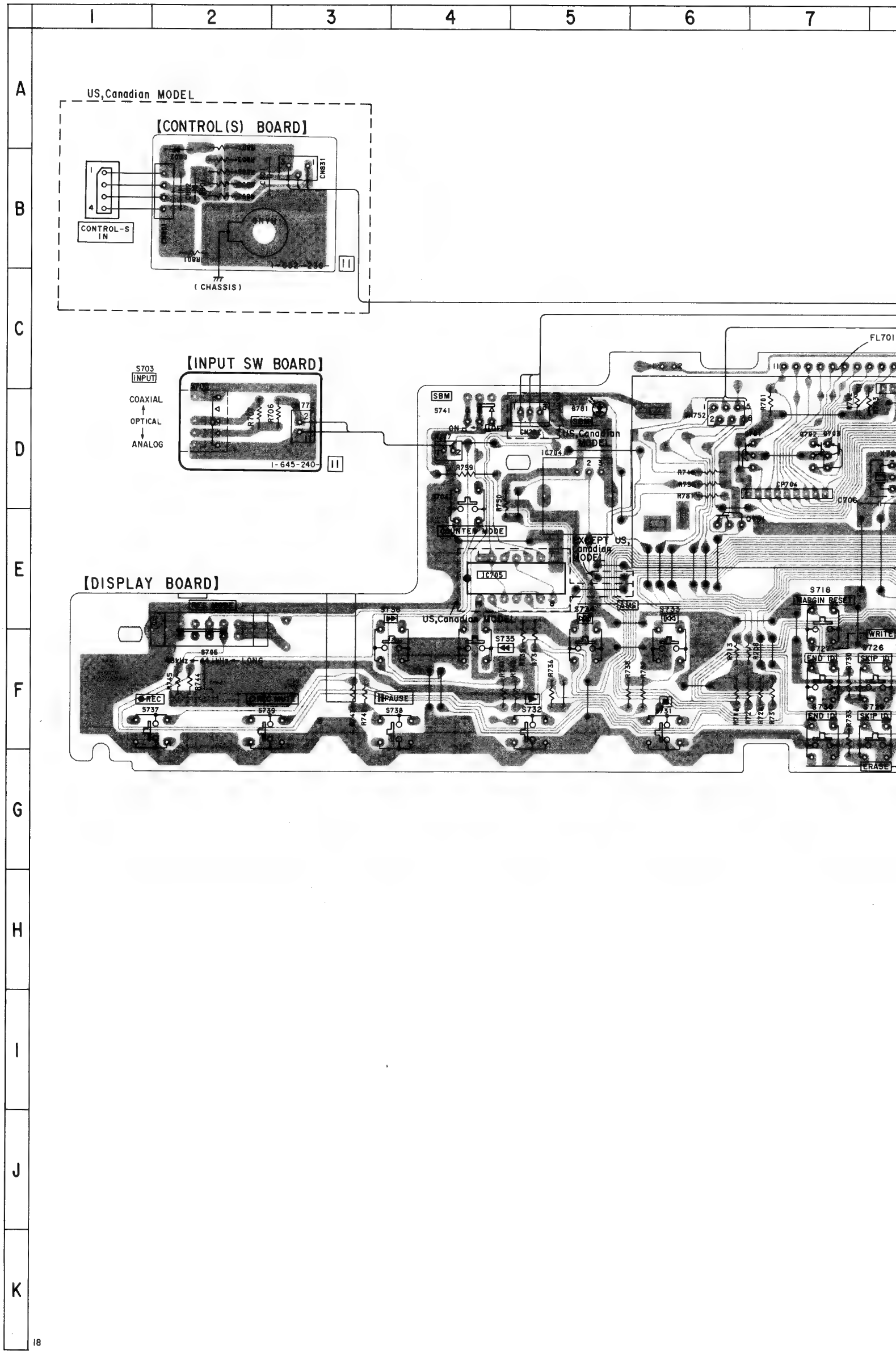
- o——: Indicated a lead wire mounted on the component side.
- ■ : Parts mounted on the conductor side
- ● : Through hole
- : Pattern from the side which enables seeing

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

4-7. PRINTED WIRING BOARDS –DISPLAY/MD Section–

● See page 25 for Circuit Boards Location and Sen



● **Semiconductor Location**

Ref. No.	Location
D01	F - 22
D781	D - 5
D801	B - 2
D802	A - 2
IC1	F - 14
IC01	G - 18
IC02	G - 19
IC03	H - 20
IC701	D - 8
IC702	E - 10
IC703	D - 10
IC704	D - 5
IC705	E - 5
PH01	I - 19
PH02	I - 19
PH03	I - 22
PH04	F - 22
Q01	G - 19
Q02	G - 19
Q701	D - 7
Q702	D - 7
Q703	D - 7
Q791	E - 6

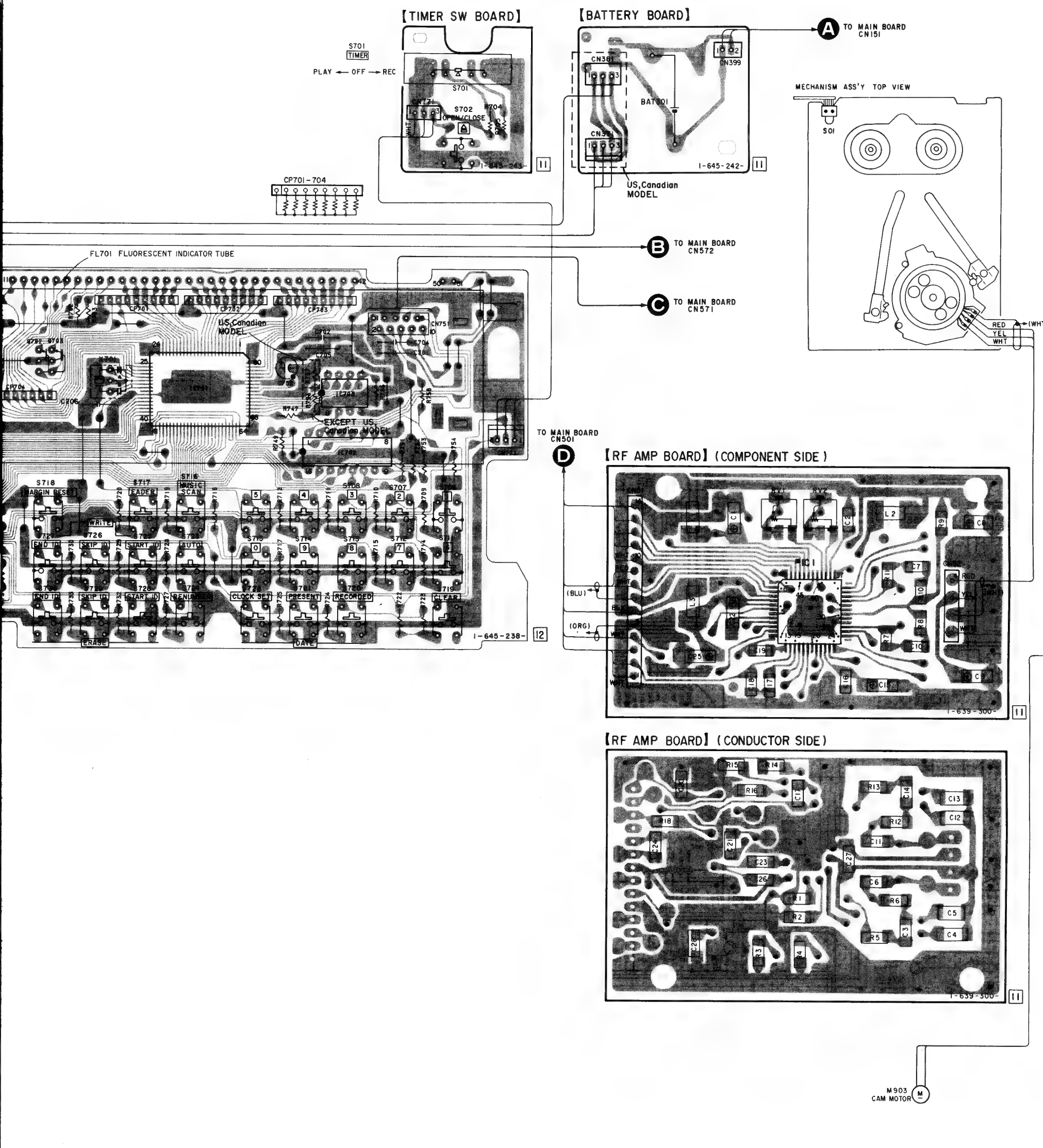
nent side.

en from

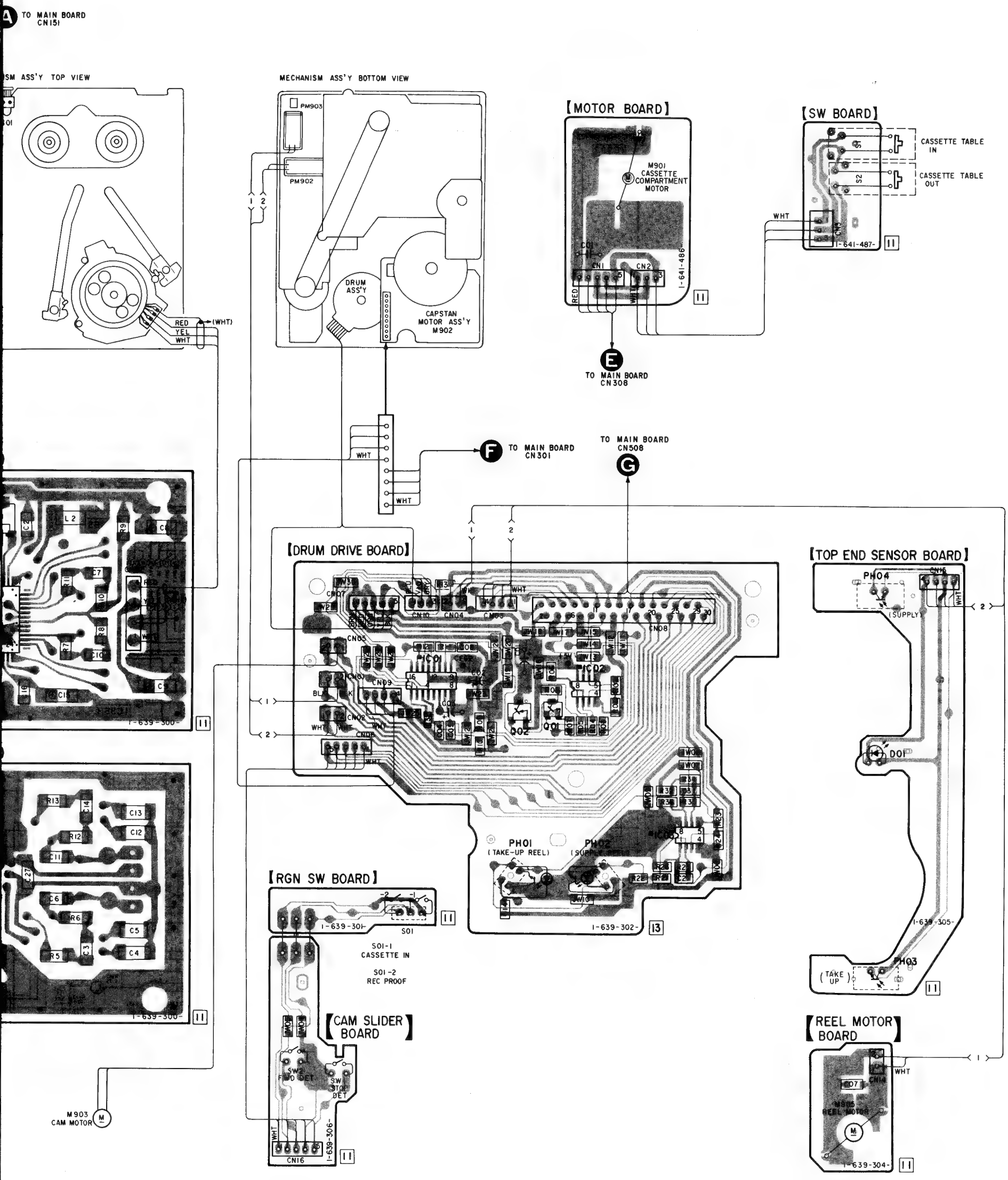
from the

ocation and Semiconductor Lead Layouts.

7	8	9	10	11	12	13	14	15	16	17



	15	16	17	18	19	20	21	22	23



[DISPLAY BOARD]

FL701
FLUORESCENT INDICATOR TUBE (BG-9330K)

IC704
GP1U50XB
REMOTE SENSOR

IC701
CXP5058H-659Q
DISPLAY CONTROL

IC705
MC14011BCP

IC702
M5M6338BS
8 DIGITAL PEAK LEVEL METER

IC703
EEP ROM

Q701-703
2SC2021-Q
GRID DRIVE

Q791 LED DRIVE

S741
SBM
ON OFF

FADER/MUSIC SCAN
MARGIN RESET
CLOCK SET
PRESENT DATE
RECOMMEND
CLEAR
REC MUTE
PAUSE
REC
MODE
AMS
ERASE

US, Canadian MODEL

EXCEPT US, Canadian MODEL

TO MAIN BOARD CN572 (B)

TO MAIN BOARD CN571 (C)

[INPUT SW BOARD]
ANALOG ← OPTICAL → COAXIAL

[TIMER SW BOARD]
(OPEN/CLOSE)
TIMER
PLAY ← OFF → REC

[CONTROL (S) BOARD]
CONTROL-S IN

[BATTERY BOARD]
BAT301
R2450(3V)

TO MAIN BOARD CN151 (A)

[MOTOR BOARD]
M901
CASSETTE COMPARTMENT MOTOR

TO MAIN BOARD CN308 (E)

[SW BOARD]
S1 CASSETTE TABLE IN
S2 CASSETTE TABLE OUT

[TOP END SENSOR BOA

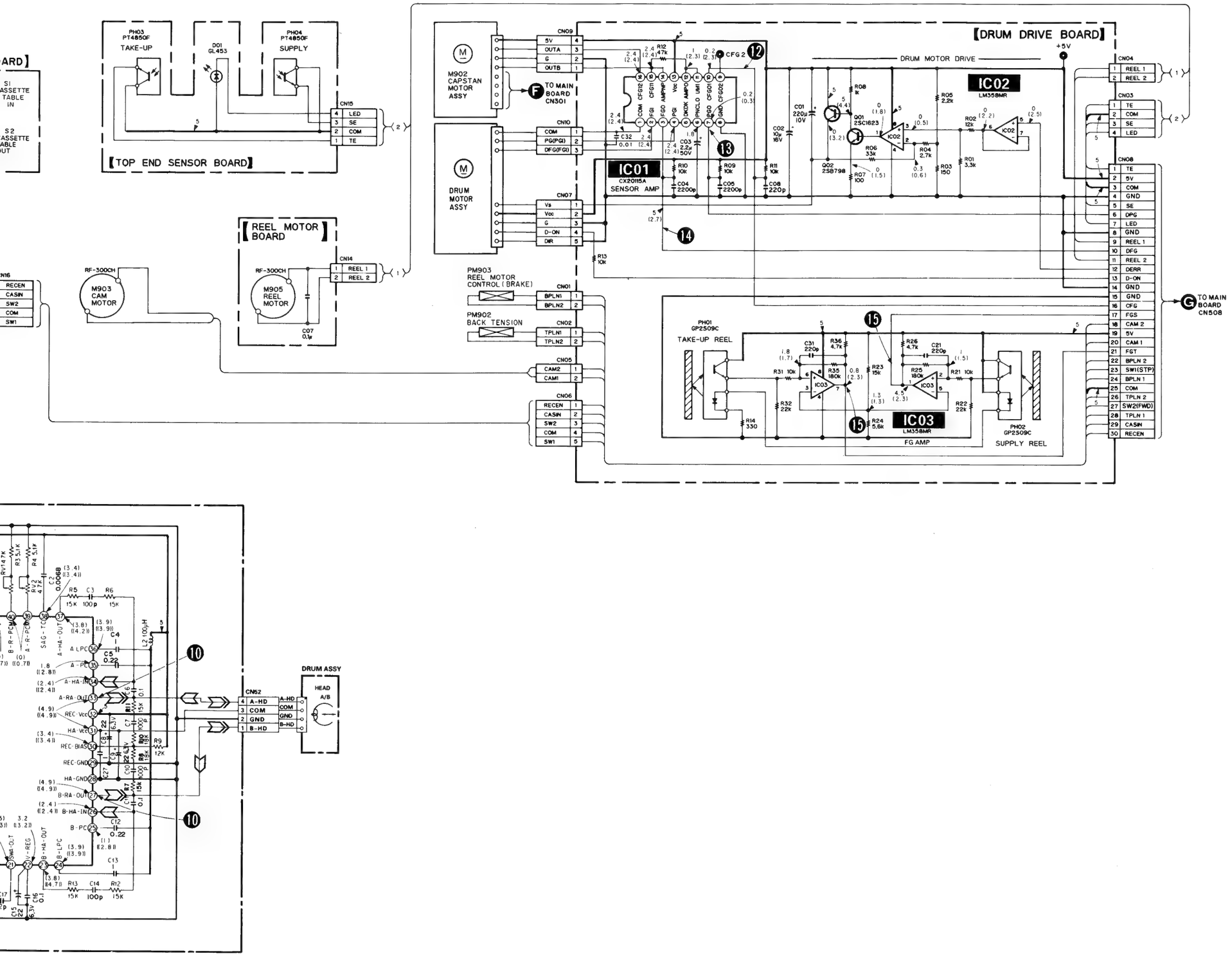
[RGN SW BOARD]
S01
Sol-1 CASSETTE IN
Sol-2 REC PROOF

[CAM SLIDER BOARD]
SW2 FWD DET
SW1 STOP DET

M903 CAM MOTOR

[RF AMP BOARD]
IC1
CXA1364R
RF AMP

TO MAIN BOARD CN501 (D)



Notes on schematic diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- △ : Internal component
- : Fuse resistor

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- ——— : B+ Line
- - - - : B− Line
- Voltage are dc with respect to ground under no-signal (STOP) conditions.

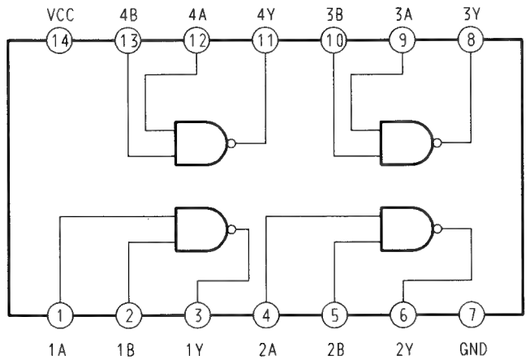
No mark : Stop
( ) : PLAY
(( )) : REC
< > : FF
<< >> : REW
[ ] : MOMENTARILY WHEN ▶▶, ◀◀ and ▶ BUTTON IS PRESSED.
[[ ]] : MUTING

- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path
  : PB
  : REC

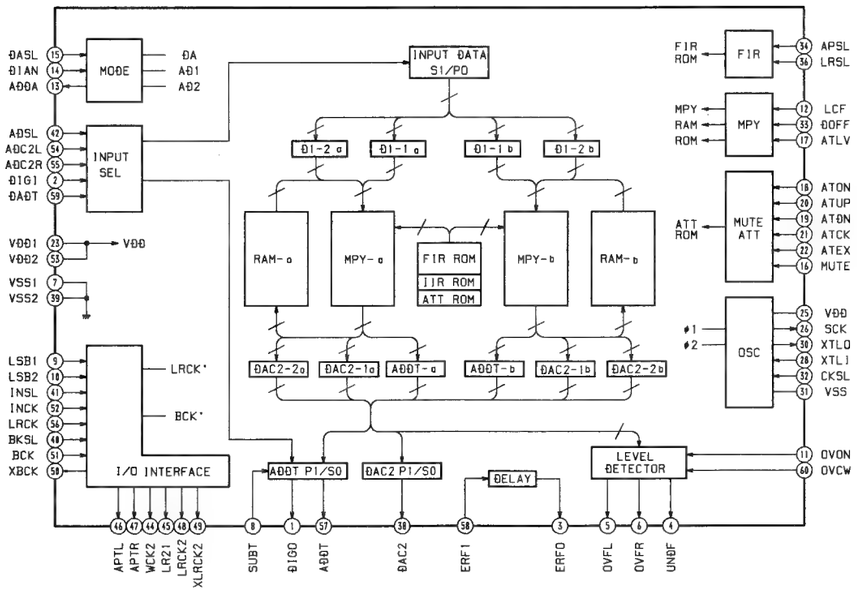
4-9. IC BLOCK DIAGRAMS

[MAIN board]

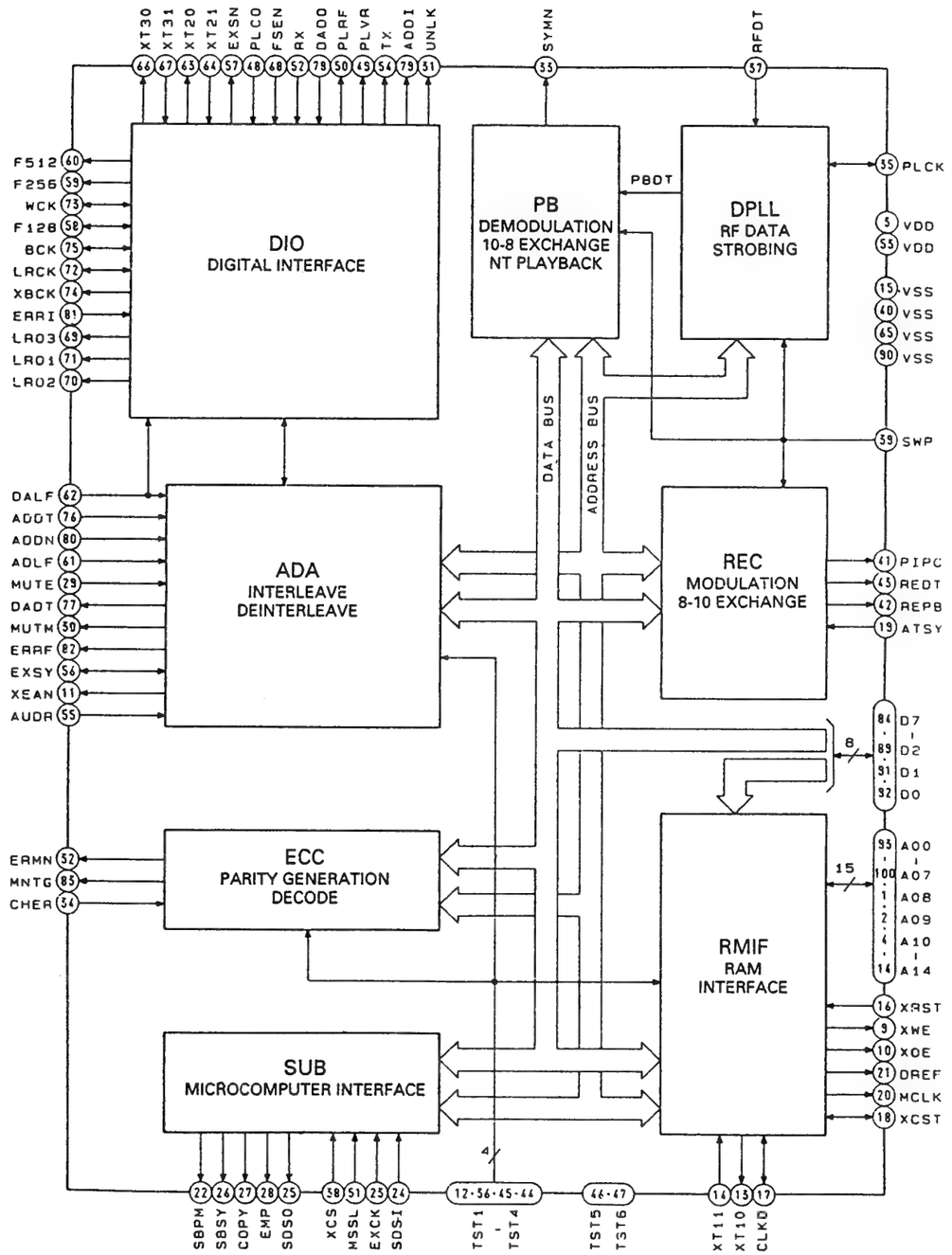
IC305 SN74HC00ANS



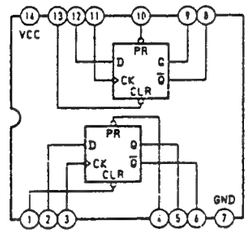
IC306 CXD1136Q



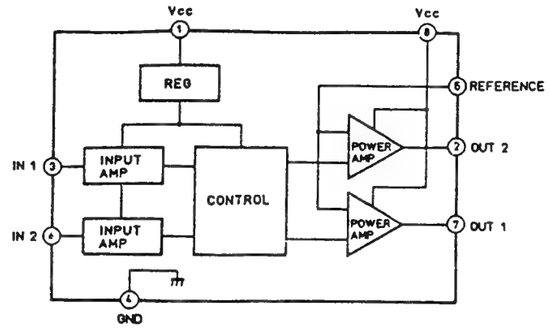
IC307 CXD2601AQ



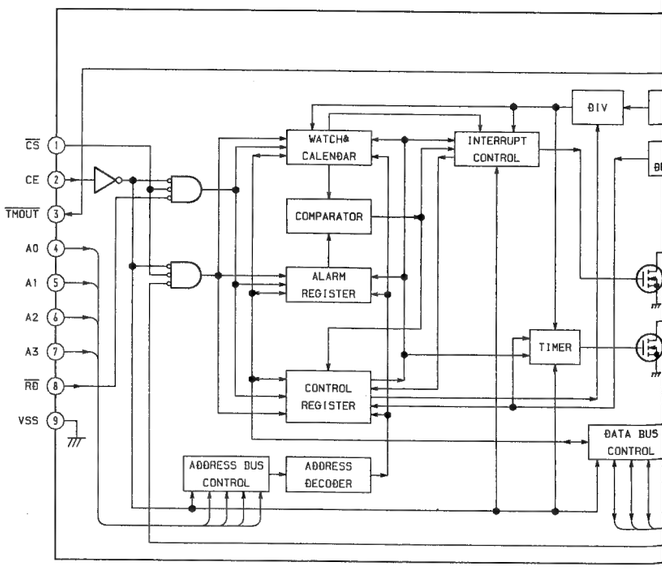
IC309, 603 SN74HC74ANS



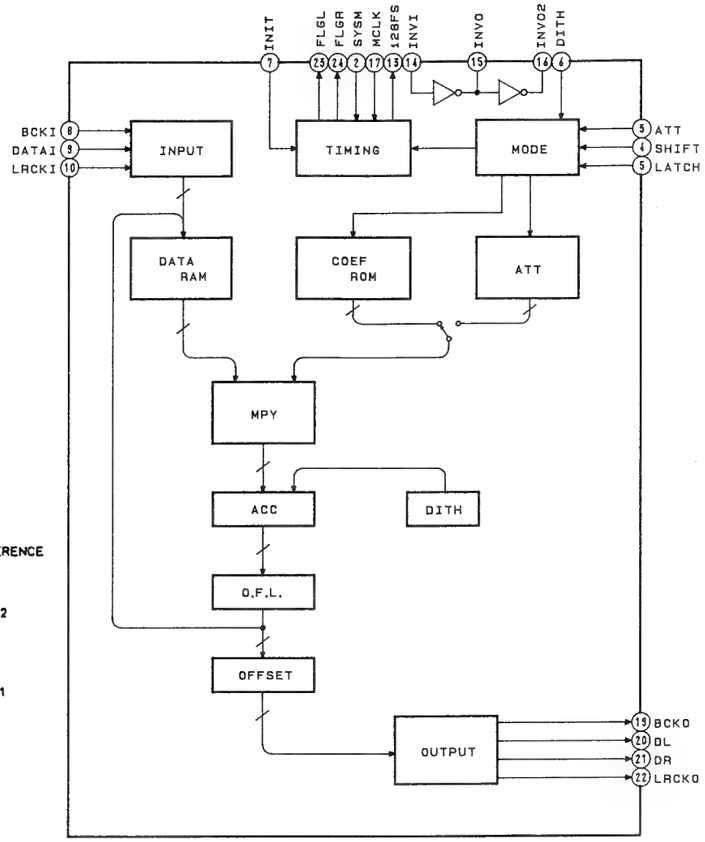
IC319, 320 M54641L



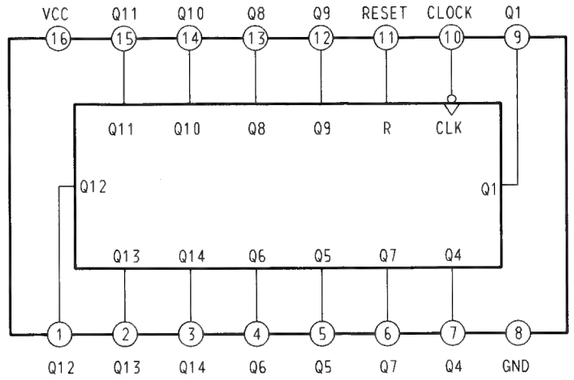
IC330 RF5C62



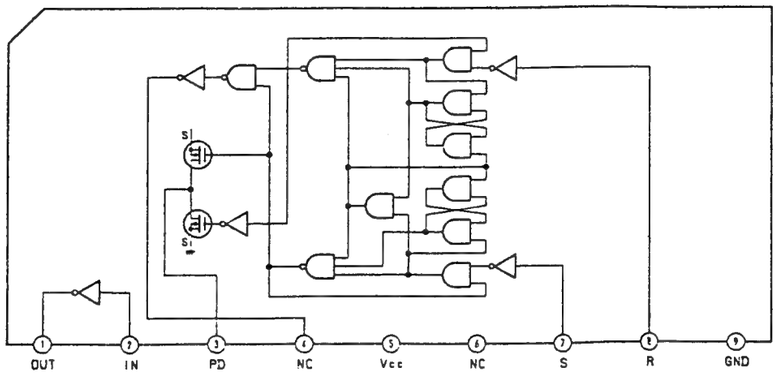
IC363 CXD2567M



IC503 SN74HC4020ANS

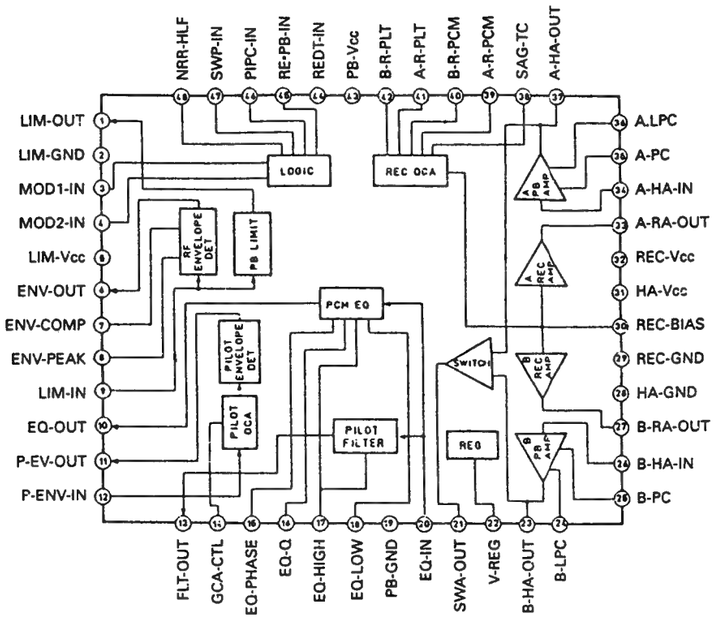


IC504 TC5081AP



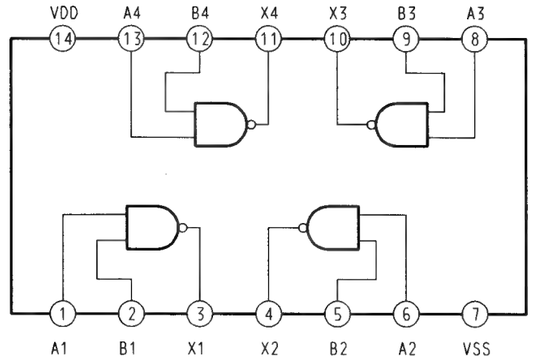
[RF AMP board]

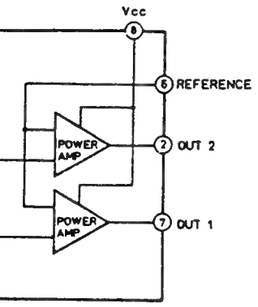
IC1 CXA1364R



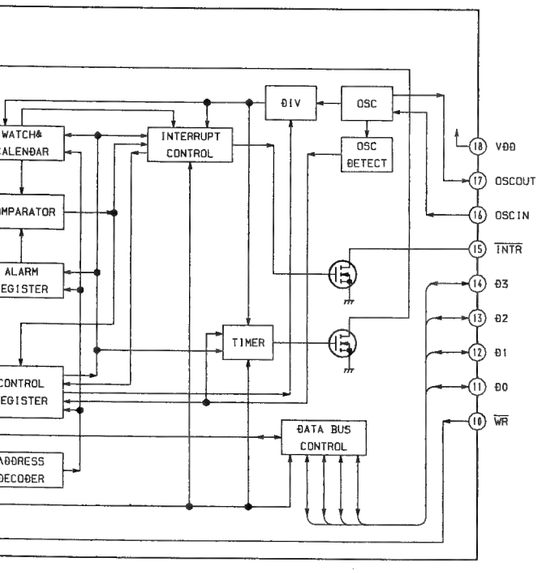
[DISPLAY board]

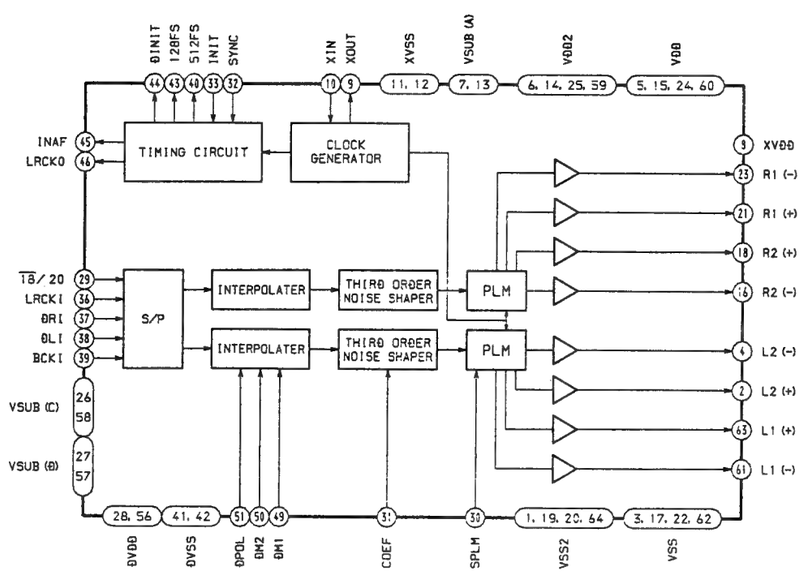
IC705 μPD4011BC





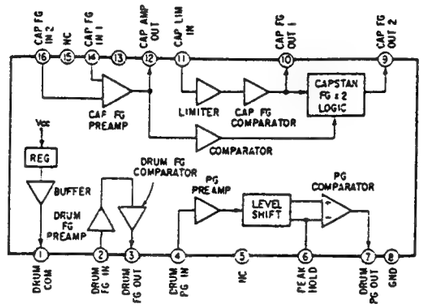
IC601 CXD2562Q





[DRUM DRIVE board]

IC01 CX20115A



4-10. IC PIN FUNCTIONS

IC306 Digital Attenuator (CXD1136Q)

The captioned attenuator is used with the equipment as a digital attenuator in fade IN and fade OUT.

Pin No.	Pin Name	I/O	Description
1	DIGO	O	Serial data output synchronized with BCK (complement of 2)
2	DIGI	I	Serial data input synchronized with BCK (complement of 2)
3	ERFO	O	Signal output for discriminating whether or not DADT has interpolated data (Not in use)
4	UNDF	O	Detect result for ADDT L, R channel data of –54 dB or less ("L": –54 dB or less) (Not in use)
5	OVFL	O	Detect result for ADDT L channel overflow ("L": overflow detected) (Not in use)
6	OVFR	O	Detect result for ADDT R channel overflow ("L": overflow detected) (Not in use)
7	VSS	—	GND
8	SUBT	I	Selects whether subcode or 18-bit data is output to ADDT and DIGO ("H" or open: 18-bit data output, "L": subcode output)
9	LSB1	I	MSB/LSB fast switching for DADT, ADDT, DIGI, DIGO ("H" or open MSB fast, L: LSB fast)
10	LSB2	I	MSB/LSB fast switching for DAC2, ADC2L (ADC2R) ("H" or open MSB fast, L: LSB fast)
11	OVON	I	Overflow detect result on/off ("H" or open: OVFL, OVFR output valid, L: OVFL, OVFR fixed "H")
12	LCF	I	Low-cut filter on/off ("H" or open: on)
13	ADDA	O	"H" in AD mode (DASL = DIAN = "L") (Not in use)
14	DIAN	I	Sets AD and DA modes
15	DASL	I	Sets AD and DA modes
16	MUTE	I	Soft muting on/off ("H": mute on)
17	ATLV	I	Digital volume range setting ("H" or open: 0 - –60, – ∞ dB, "L": +12 - –48, ∞ dB
18	ATON	I	Digital volume on/off ("H" or open: off)
19	ATDN	I	Digital volume level down
20	ATUP	I	Digital volume level up
21	ATCK	I	Digital volume level setting clock and soft muting external clock
22	ATEX	I	Soft muting operation clock selection ("H" or open: internal clock, "L": ATCK)
23	VDD	—	Power supply (+5 V)
24	NC		
25	VDD	—	Oscillator circuit power supply (+5 V)
26	SCK	O	Oscillator clock output (Not in use)
27	NC		
28	XTLI	I	Crystal connector and clock input pin
29	NC		
30	XTLO	O	Crystal connector pin (24.576 MHz oscillation frequency possible) (Not in use)
31	VSS	—	Oscillator circuit GND
32	CKSL	I	Oscillator clock division selection ("H" or open: no division, "L": 1/2 division)
33	NC		
34	NC		
35	DOFF	I	DAC2 digital offset on/off ("H" or open: on) (Not in use)
36	APSL	I	Aperture correction filter coefficient selection (not valid in AD mode) ("H" or open: correction active)
37	LRSL	I	L, R channel phase difference correction selection ("H" or open: correction active) (Not in use)
38	DAC2	O	Serial data output to 2-times oversampling DA converter (complement of 2) (Not in use)
39	VSS	—	Power supply (+5 V)
40	BKSL	I	LRCK, BCK input timing switch ("H" or open: LRCK change point and BCK leading edge synchronized, "L": LRCK change point and BCK trailing edge synchronized)
41	INSL	I	DADT, DIGI, ADC2L (ADC2R) data incorporation clock selection ("H" or open: BCK, "L": INCK)
42	ADSL	I	ADC2L, ADC2R data selection ("H" or open: ADC2L, "L": ADC2L and ADC2R switched by LRCK2)
43	NC		
44	WCK2	O	Clock equivalent to 4fs (Not in use)
45	LR21	O	DAC2 L, R channel discrimination signal in I^2S format (Not in use)

Pin No.	Pin Name	I/O	Description
46	APTL	O	Aperture signal (Not in use)
47	APTR	O	Aperture signal (Not in use)
48	LRCK2	O	DAC2, ADC2L (ADC2R) L, R channel discrimination signal (equivalent to 2fs) ("L": L channel, "H": R channel) (Not in use)
49	XLRCK2	O	LRCK2 inverted output (Not in use)
50	XBCK	O	BCK inverted output (Not in use)
51	BCK	I	Clock equivalent to 64fs for DADT, ADDT, DIGI, DIGO data incorporation
52	INCK	I	DADT, DIGI, ADC2L (ADC2R) data incorporation clock
53	VDD	—	Power supply (+5 V)
54	ADC2L	I	Serial data input from 2-times oversampling AD converter (complement of 2)
55	ADC2R	I	Serial data input from 2-times oversampling AD converter (complement of 2)
56	LRCK	I	DADT, ADDT, DIGI, DIGO L, R channel discrimination signal (fs) ("L": L channel, "H": R channel)
57	ADDT	O	Serial data output synchronized with BCK (complement of 2)
58	ERFI	I	Signal input for discriminating whether or not DADT has interpolated data (complement of 2)
59	DADT	I	Serial data input synchronized with BCK (complement of 2)
60	OVCW	I	Clock input which determines detect time for OVFL, OVFR and UNDF

IC307 DAT Signal Processor (CXD2601AQ)

This processor is an LSI to process recording and playback signals of the R-DAT system, in a single chip and provided with digital PLL, modem, error correction circuit, digital I/O, RAM control circuit, etc.

Pin No.	Pin Name	I/O	Description
1, 2	A08, A09	I/O	RAM address A08, A09
3	VDD	—	5 V
4-6	A10-A12	I/O	RAM address A10-A12
7, 8	A13, A14	O	RAM address A13, A14
9	XWE	O	RAM write enable signal
10	XOE	O	RAM output enable signal
11	XEAN	O	External addressing bus interrupt enable signal (Not in use)
12	TST1	I	Test pin (normally "L")
13	XT1O	O	18.816 MHz crystal oscillator output
14	XT1I	I	18.816 MHz crystal oscillator input
15	VSS	—	GND
16	XRST	I	Reset pin (normally"H")
17	CLKO	I/O	18.816 MHz clock output (Not in use)
18	XCST	I/O	SYEK (internal system clock) generation CLKO division timing signal (Not in use)
19	ATSY	I	ATF sync signal input
20	MCLK	O	9.408 MHz clock output
21	DREF	O	Drum servo reference signal
22	SBPM	O	Discrimination signal determining whether the subcode I/O clock (EXCK) is accepted ("L": accept, "H": ignore) (Not in use)
23	EXCK	I	Subcode I/O data transfer clock (DUTY50)
24	SDSI	I	Subcode serial data input
25	SDSO	O	Subcode serial data output
26	SBSY	O	Subcode I/O sync signal
27	COPY	O	Copy data output (Not in use)
28	EMP	O	Emphasis data output (Not in use)
29	MUTE	I	Mute pin
30	MUTM	O	Mute discrimination signal ("H": muted)
31	UNLK	O	RX PLL lock discrimination signal ("H": locked)
32	ERMN	O	Detects presence or absence of RF ("H": RF present, "L" during REC)
33	SYMN	O	C1 check result for RF ("H": OK) (Not in use)
34	CHER	I	Signal for discriminating whether C2 is 1 or 2 times (C2 → C1 → C2 or C1 → C2) ("H": 1 time, "L": 2 times) (Not in use)
35	PLCK	I/O	RF PLL clock output (Not in use)
36	TST2	I	Test pin (normally "L")
37	RFDT	I	RF signal input
38	XCS	I	Subcode I/O chip select ("L": select)
39	SWP	I	RF switching pulse ("L": A-CH, "H": B-CH)
40	VSS	—	GND
41	PIPC	O	REC data PILOT/PCM discrimination signal ("H": PILOT, during playback: always "L")
42	REPB	O	Record/playback switching signal ("H": record)
43	REDT	O	Recording signal output, fixed "L" during playback
44	TST4	I	Test pin (normally "L")
45	PDO	O	RX APLL PD output (comparator output)
46	AMPI	I	RX APLL oscillator cell amp input
47	AMPO	O	RX APLL oscillator cell amp inverted output
48	PLCO	I	RX APLL external VCO clock input

Pin No.	Pin Name	I/O	Description
49	PLVR	O	RX APLL comparison signal when external comparator is active (Vin) Not in use
50	PLRF	O	RX APLL comparison signal when external comparator is active (Rin) Not in use
51	MSSL	I	Master/slave setting ("H": master (fixed with the equipment), "L": slave)
52	RX	I	Digital input
53	VDD	—	5 V
54	TX	O	Digital output
55	AUDR	I	Audio mode/data recorder mode setting ("H": audio mode, "L": data recorder mode)
56	EXSY	I/O	Complete copy sync signal (25/3 - 100/3 Hz)
57	EXSN	I/O	Complete copy sync signal (25/3 - 100/3 Hz)
58	F128	I/O	128fsCK (normal)/256fsCK (×2) (DUTY50)
59	F256	O	256fsCK (normal)/512fsCK (×2) (DUTY50)
60	F512	O	512fsCK (normal)/512fsCK (×2) (DUTY50)
61	ADLF	I	Signal for discriminating whether ADDT serial data is MSB first or LSB first ("H": LSB first)
62	DALF	I	Signal for discriminating whether DADT serial data is MSB first or LSB first ("H": LSB first)
63	XT20	O	22.5792 MHz crystal oscillator output
64	XT21	I	22.5792 MHz crystal oscillator input
65	VSS	—	GND
66	XT30	O	49.152 MHz crystal oscillator output (24.576 MHz in B mode)
67	XT31	I	49.152 MHz crystal oscillator input (24.576 MHz in B mode)
68	FSEN	I	F128, BCK, LRCK input/output switch ("H": output)
69	LR03	O	LR02 inversion
70	LR02	O	LRCK 16BCK delay signal
71	LR01	O	LRCK 15BCK delay signal
72	LRCK	I/O	fs (normal)/2fs (×2) ("L": L-CH, "H": R-CH)
73	WCK	I/O	2fs (normal)/4fs (×2) (input mode only for testing)
74	XBCK	O	BCK inversion
75	BCK	I/O	64fs (normal)/128fs (×2)
76	ADDT	I	Serial AD data (complement of 2)
77	DADT	O	Serial DA data (complement of 2)
78	DADO	I	Digital output (DA) data input (normally connected to DADT)
79	ADDI	O	Digital input (AD) data output (normally connected to ADDN)
80	ADDN	I	Digital input (DA) data input
81	ERRI	I	Digital output V-FLAG data input (normally connected to ERRF)
82	ERRF	O	Signal output for discriminating whether or not DADT has interpolated data ("H": interpolated data)
83	MUTG	O	Error correction status monitor trigger
84-89	D7-D2	I/O	RAM data bus D7-D2
90	VSS	—	GND
91, 92	D1, D0	I/O	RAM data bus D1, D0
93-100	A00-A07	I/O	RAM address A00-A07

IC311 Mechanism/Servo Microcomputer (CXP80524-092Q)

The mechanical deck servo systems are controlled by the captioned microcomputer according to instructions from the main microcomputer (IC312).

Micom: Microcomputer

Pin No.	Pin Name	I/O	Connected to	Description
1		O		Not in use
2	$\overline{\text{BUSY}}$	O	Main Micom	Busy (Active "L") to the Main Micom
3		O		Not in use
4	REEL_CCW	O	Mechanism	Reel motor CCW ("L": RVS direction) } *1
5	REEL_CW	O	Mechanism	Reel motor CW ("H": FWD direction) } *1
6	C_DIR_RVS	O	Mechanism	Capstan Direction ("L": FWD, "H": RVS)
7	PLN_ON	O	Mechanism	Plunger On
8	PLN_KICK	O	Mechanism	Plunger Kick
9	D_ON	O	Mechanism	Drum On ("H": The drum is revolving)
10	D_DIR_RVS	O	Mechanism	Not in use
11-16		O		Not in use
17	LE	O	Mechanism	Loading Motor Eject } *2
18	LL	O	Mechanism	Loading Motor Load } *2
19	CAS_M_OUT	O	Mechanism	Cassette control motor Out } *3
20	CAS_M_IN	O	Mechanism	Cassette control motor In } *3
21-24		—		Not in use
25	RE_FWD	I	Mechanism	Encoder SW2 } *4
26	RE_STOP	I	Mechanism	Encoder SW1 } *4
27-30	$\overline{\text{END\_LED\_ON}}$	O	Mechanism	End sensor ON Illuminated upon "L" (rectangular wave of about 1kHz). It is not output unless a cassette is mounted ("H").
31	MP	I		Microprocessor mode selected (the equipment is fixed at "L").
32	$\overline{\text{RST}}$	I		System Reset (low active)
33	Vss	—		Power terminal (GND)
34	XTAL	O		System Clock Output (Not in use)
35	EXTAL	I	CXD2601AQ	System Clock Input (9.408 MHz)
36-39		—		Not in use
40	X_SRV_REQ	I	Main Micom	Request for communication from the Main Micom
41	MAIN_DT_I	I	Main Micom	Serial Input from the Main Micom
42	MAIN_DT_O	O	Main Micom	Serial Output to the Main Micom
43	MAIN_CK	I	Main Micom	Serial Clock with the Main Micom
44	AVss	—		GND for A/D
45	AVref	—		Reference Voltage for A/D (+5 V)
46	AVdd	—		Power Supply for A/D (+5 V)
47	T_END	I	Mechanism	Take-up side end sensor input (analog) } Magnetic matter: 0V,
48	S_END	I	Mechanism	Supply side end sensor input (analog) } Leader tape: AC (*5)
49	CAS_IN	I	Mechanism	Cassette-in switch (S01). "H": Cassette is mounted.
50	REC_EN	I	Mechanism	Rec-enable switch (S01). "H": REC enabled.
51	CAS_LCKed	I	Mechanism	Casecon locked Upon completion of loading: "H"
52	CAS_OUTed	I	Mechanism	Casecon outed Upon completion of loading OUT: "H"
53		I	Pull up	Not in use
54	ATF_IN	I	RF Amp	ATF PILOT input
55	FG_T	I	Mechanism	Reel FG (T Side) } 6/24Hz (Small reel diameter) -
56	FG_S	I	Mechanism	Reel FG (S Side) } 15/24Hz (Large reel diameter) (In SP FWD)
57	C_FG	I	Mechanism	Capstan FG SP: 674 Hz, LP: 337 Hz
58	D_FG	I	Mechanism	Drum FG 400 Hz: LP REC, 800 Hz: Other modes
59	D_PG	I	Mechanism	Drum PG } Other than LP REC: 800/24Hz
60	D_REF	I	CXD2601AQ	Drum Reference } In LP REC: 400/24Hz

Pin No.	Pin Name	I/O	Connected to	Description
61	MST_CK	I	CXD2601AQ	Master clock (9.408MHz)
62	PB_DT	I	RF Amp	PB Data input to create ATF Sync
63	SWP	O	CXD2601AQ	Switching Pulse "L": Ach, "H": Bch
64	D_PWM	O	Mechanism	PWM Out for Drum
65	C_PWM	O	Mechanism	PWM Out for Capstan
66	PWM_R	O	Mechanism	PWM Out for Reel
67	TEN_PWM	O	Mechanism	PWM Out for Tension Regulator Plunger
68	AGC_PWM	O	RF Amp	PWM Out for AGC
69	$\overline{\text{SBSY}}$	I	CXD2601AQ	↓ of subsync is detected (XINT2).
70	$\overline{\text{TEST}}$	I	Pull-up	Test Mode (active "L")
71	POW_DN	I		Not in use
72	Vdd	—		Power terminal (+5 V)
73	Vss	—		Power terminal (GND)
74		—		Not in use
75	ATF_S2	O	CXD2601AQ	ATF Sampling Pulse
76-80		—		Not in use

* 1 Reel motor control

	CCW (counterclockwise)	CW (clockwise)
STOP (only in POWER ON)	L	L
FWD	L	H
RVS	H	L
Prohibit	H	H

*2 Loading motor control

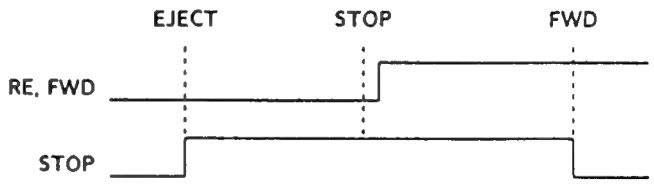
	LE	LL
—	L	L
LOAD	L	H
EJECT	H	L
Brake	H	H

*3 Casecon motor control

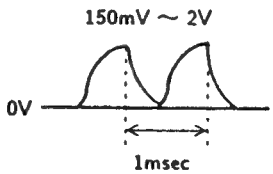
	OUT	IN
—	L	L
IN	L	H
OUT	H	L
Brake	H	H

*4 Encoder

RF-FWD	RE_STOP	Position
L	L	EJECT
L	H	STOP UNLD-STOP
H	L	FWD
H	H	STOP-FWD



*5 End sensor



With leader tape

IC312 Main Microcomputer (CXP80524-091Q)

This Microcomputer generally controls the operation of the equipment while exchanging data with the display microcomputer (IC701) and mechanism/servo microcomputer (IC311) in serial communications, including the DAT signal processor (IC307), digital filter (IC363) and other IC.

Micom: Microcomputer

Pin No.	Pin Name	I/O	Connected to	Description
1	VCO EN	O	VCO Circuit	VCO enable out
2	L_MUTE	O	Line Out	Line Mute (Active "L")
3		O		Not in use
4		O		Not in use
5	WRT	O	Clock IC	Write request (Active "L")
6	RD	O	Clock IC	Read request (Active "L")
7-10	ADRS_3-0	O	Clock IC	Address 3-0 (Address BUS)
11-14	DATA_7-4	I/O		DATA 7-4 (DATA BUS). Not in use with the equipment
15-18	DATA_3-0	I/O	Clock IC	DATA 3-0 (DATA BUS)
19	ATT_EXT	O	CXD1136Q	Fade attenuator ck externally selected (Active "L")
20	DIG/ANA	O	CXD1136Q	Fade In/Out switching for DIG ("L")/ANA ("H")
21	REC/PB	O	CXD1136Q	Fade In/Out REC switching for ("L")/PB ("H")
22	ATT_CK	O	CXD1136Q	Clock for fade In/Out
23	DTR	O	CXD2601AQ	Audio use ("H")/Data Recorder use ("L). Becomes "L" in after-recording and searching.
24	OPT/COA	O	Digital I/O	Switching for Optical ("L")/Coaxial ("H")
25	FS32	O		Not in use
26	RAM_SEL	O		Not in use
27	DISP_REQ	O	Display Micom	Request for communication with the Display Micom ("L" Active)
28	SD_SEL	O	CXD2601AQ	Request for communication with CXD2601 ("L" Active)
29	SRV_REQ	O	Mechanism Micom	Request for communication with the Mechanism Micom ("L" Active)
30	CLOCK_SEL	O	Clock IC	Clock IC chip selected
31	MP	I		Microprocessor mode selected (fixed at "L" with the equipment)
32	RST	I		System Reset ("L" Active)
33	Vss	—		Power terminal (GND)
34	XTAL	O		System Clock Output (Not in use)
35	EXTAL	I	CXD2601AQ	System Clock Input (9.048 MHz)
36	DISP_ACK	I	Display Micom	ACKnowledge (Active "L")
37	DISP_DT_I	I	Display Micom	Serial Input
38	DISP_DT_O	O	Display Micom	Serial Output
39	DISP_CK	I	Display Micom	Serial clock
40	SBSY	I	CXD2601AQ	Subcode sync
41	SR_DT_IN	I	CXD2601AQ & Mechanism Micom	Serial Data In
42	SR_DT_OUT	O		Serial Data Out
43	SR_CK	I/O		Serial clock (In/Out) to Sub Code Interface
44	AVss	—		GND for A/D
45	AVref	—		Reference Voltage for A/D (+5 V)
46	AVdd	—		Power Supply for A/D (+5 V)
47		I		Not in use
48		I		Not in use
49	BUSY	I	Mechanism Micom	Mechanism servo Micom Busy (Active "L")
50	AU_BUS_IN	I	Pull-up	Not in use

Pin No.	Pin Name	I/O	Connected to	Description
51	TM_IN	I	+5V	Not in use
52	MUT_MON	I	CXD2601AQ	Mute monitor (Active "H")
53	LVL_SYNC	I	Audio Block	Start ID is written by entering Level Sync Input audio.
54		I	+5V	Not in use
55	$\overline{\text{TRQ\_TEST}}$	I	Pull-up	Not in use
56	$\overline{\text{NO\_CAS\_TEST}}$	I	Pull-up	Not in use
57	TIME_24/12	I	Pull-up	Time indication "H": 12 hours (AM, PM) "L": 24 hours display
58	DATE_ORDER	I	Pull-up	Order of DATA display "H": Year, month and day "L": Month, day and year
59-62	AF_3-0	I	Pull-up	Not in use
63		O	Pull-up	Not in use
64	$\overline{\text{L\_MUTE}}$	O		Line Mute (Active "L"). Not in use with the equipment (Not in use)
65	$\overline{\text{TR\_MUTE}}$	O	Line Out	Transistor Mute (Active "L")
66	MUTE_1136	O	CXD1136Q	Mute for CXD1136Q (Active "H")
67	MUTE_2601	O	CXD2601AQ	Mute for CXD2601 (Active "H")
68	A_D_PWR_DWN	O	IC333	A/D Converter Power Down Mode (Active "H"). The AD converter is turned OFF upon digital input/output.
69	ER_MON	I	CXD2601AQ	Error Monitor (Data Valid)
70	$\overline{\text{TEST}}$	I	Pull-up	Test Mode (Active "L")
71	POW_DN	I	+5 V	Not in use
72	Vdd	—		Power terminal (+5V)
73	Vss	—		Power terminal (GND)
74		—	Pull-up	Not in use
75	D_F_ATT	O	CXD2567M	Communication line (Serial Data) with Digital Filter
76	D_F_$\overline{\text{SHIFT}}$	O	CXC2567M	Communication line with Digital Filter (Shift Clock; shifted by ↓ and taken in by ↑)
77	D_F_$\overline{\text{LATCH}}$	O	CXD2567M	Communication line (Latch Pulse) with Digital Filter
78	AD_DF_$\overline{\text{LATCH}}$	O	CXD8482Q	Communication line (latch pulse) with Decimation Filter
79	SBM	O	CXD8482Q	SBM ON "H" SBM OFF "L"
80	DA_INIT	O	CXD2567M CXD2562Q (1 BIT DAC)	Initialize output to Digital Filter and 1 Bit DAC

IC330 Real Time Clock (RF5C62)

The Clock is an IC for clock and calendar and backed up by a lithium battery when the power supply to the set is OFF.

Pin No.	Pin Name	I/O	Description
1	$\overline{\text{CS}}$	I	Chip select input. Active "L"
2	CE	I	Chip enable input. Active "H"
3	TMOUT	O	Interval output
4-7	A0-3	I	4 bit address input
8	$\overline{\text{RD}}$	I	Read-out control input
9	Vss	–	Power terminal (GND)
10	$\overline{\text{WR}}$	I	Write-in control input
11-14	D0-3	I/O	4 bit data input/output
15	$\overline{\text{INTR}}$	O	Interrupt output. A 2048Hz signal is output here with the equipment.
16	OSCIN	I	Clock input (32.768kHz)
17	OSCOUT	O	Clock output
18	V_{DD}	–	Power terminal (+5 V)

IC359 A/D CONVERTER (CXD8493P)

Pin No.	Pin Name	I/O	Description
1	AGND	–	Analog
2	PD	I	Power down ("H": ON, "L": OFF)
3	AIL+	I	Lch analog (+) input
4	AIL–	I	Lch analog (–) input
5	SEL	I	Input select ("H": AGND, "L": Normaly)
6	DGND	–	Digital GND
7	VD+	–	Digital power supply (+5V)
8	AL	O	Lch modulator output
9	NC	–	Not in use
10	NC	–	Not in use
11	NC	–	Not in use
12	NC	–	Not in use
13	NC	–	Not in use
14	NC	–	Not in use
15	NC	–	Not in use
16	NC	–	Not in use
17	NC	–	Not in use
18	NC	–	Not in use
19	NC	–	Not in use
20	NC	–	Not in use
21	AR	O	Rch modulator output
22	FCLK	I	Master clock input (128fs)
23	VA+	–	Analog (+) power supply (+5V)
24	VA–	–	Analog (–) power supply (–5V)
25	AIR–	I	Rch Analog (–) input
26	AIR+	I	Rch Analog (+) input
27	REF–	O	Standard voltage (–) output (–3.68V)
28	REF+	O	Standard voltage (+) output (+3.68V)

IC370 (CXD8482Q) DECIMATION FILTER

Pin No.	Pin Name	I/O	Description
1	TEST	I	Test pin (normally "L")
2	NC	–	Not in use
3	NC	–	Not in use
4	INIT	I	
5	NC	–	Not in use
6	NC	–	Not in use
7	VDD	–	Power supply (+5V)
8	VDD	–	Power supply (+5V)
9		–	Not in use
10		–	Not in use
11	NC	–	Not in use
12		–	Not in use
13		–	Not in use
14		–	Not in use
15	NC	–	Not in use
16	NC	–	Not in use
17	NC	–	Not in use
18	NC	–	Not in use
19	NC	–	Not in use
20	AL1	I	Lch DATA input (when 64fs)
21	AR1	I	Rch DATA input (when 64fs)
22	VSS	–	GND
23	VSS	–	GND
24	CVSS	–	GND
25	CVSS	–	GND
26	FCLK	O	Clock output for FE (128fs)
27	MCLK	I	Master clock input (256fs)
28	CVDD	–	Power supply (+5V)
29	NC	–	Not in use
30	NC	–	Not in use
31	NC	–	Not in use
32	VSS	–	Power supply (0V)
33	SCALE	I	Scaling quantity select (when 64fs) ("H":×2.0, "L":×2.5)
34	ISEL1	I	Input select ("H" 8fs "H" 2fs "L" fs "L" 64fs / "H" "L" "H" "L")
35	ISEL2	I	
36	NC	–	Not in use
37	DITH	I	Dither ("H": ON, "L": OFF)
38	BOOST	I	Boost ("H": ON, "L": OFF)
39	VDD	–	Power supply (+5V)
40	MODE	I	MODE data input

Pin No.	Pin Name	I/O	Description
41	SHIFT	I	SHIFT clock input
42	LATCH	I	LATCH clock input
43	NC	–	Not in use
44	LC	I	Low cut ("H": ON, "L": OFF)
45	SBM	I	Super bit mapping ("H": ON, "L": OFF)
46	NC	–	Not in use
47	OSEL	I	Output select ("H": 2fs, "L": fs)
48	OBIT	I	24bit/16bit select ("H": 24bit, "L": 16bit)
49	DRO	O	Rch data output
50	DLO	O	Lch data output
51	NC	–	Not in use
52	VSS	–	GND
53	VSS	–	GND
54	BCK	I/O	SYNC "H": BCK output, SYNC "L": BCK input
55	NC	–	Not in use
56	LRCK	I/O	SYNC "H": LRCK output, SYNC "L": LRCK input
57	NC	–	Not in use
58	VDD	–	Power supply (+5V)
59	NC	–	Not in use
60	NC	–	Not in use

IC701 Display Microcomputer (CXP5058H-661Q)

The Microcomputer controls key input, FL tube display, remote control signal input, level meter (IC702) and EEP-ROM (IC703) according to instructions from the Main Microcomputer (IC312).

Micom: Microcomputer

Pin No.	Pin Name	I/O	Connected to	Description
1-18	e_-v_SEG	O	FL tube FL701	FL Segment 'e'-'v'
19-28	10_-1_G	O	FL tube FL701	FL Grid #10-#1
29	$\overline{\text{DSP\_REQ}}$	I	MAIN Micom	Communication request (Active "L")
30	XTAL	—	Ceramic oscillator	
31	EXTAL	I	Ceramic oscillator	4.19MHz ceramic oscillator
32	$\overline{\text{RST}}$	I		System Reset (Active "L")
33	NC	—		Not in use
34	Vdd	I		Power terminal (+5 V)
35-42	AD_0-7	I	Panel switch	Key input A/D converter input #0 - #7
43	NC	—		Not in use
44	DISP_CK	O	MAIN Micom	Shift clock
45	SO	O	MAIN Micom	Serial data OUT
46	SI	I	MAIN Micom	Serial data IN
47	$\overline{\text{DSP\_ACK}}$	O	MAIN Micom	Acknowledge (Active"L")
48	$\overline{\text{44.1kHz REC}}$	I	S705	S44.1kHz REC (Active "L")
49	COUNTER MODE	I	S704	MODE (counter) switch (Active"L")
50	REC MODE	I	S705	REC MODE "H": Standard, "L": Long
51-54	LVL_DT_0-3	I/O	Level Meter IC	Level Meter Data 0-3
55, 56	LVL_ADRS_0, 1	O	Level Meter IC	Level Meter Data 0, 1
57	$\overline{\text{LVL\_RD}}$	O	Level Meter IC	Level Meter Read Mode (Active "L")
58	$\overline{\text{LVL\_WR}}$	O	Level Meter IC	Level Meter Write Mode (Active "L")
59	$\overline{\text{LVL\_SEL}}$	O	Level Meter IC	Level Meter IC Select (Active "L")
60	$\overline{\text{SBM\_LED}}$	O	Q791 Base	
61	RMC MON	I	Remote sensor	Remot control signal input
62	RMC	I	Remote sensor	Remot control signal input
63	$\overline{\text{TEST}}$	I	Pull-up	Test mode (Active "L")
64	$\overline{\text{TR\_MUTE}}$	I	IC431	Level meter mute (Active "L")
65	$\overline{\text{BUSY}}$	I	EEPROM	BUSY signal (Active "L")
66	ROM_DT_IN	I	EEPROM	Data input
67	ROM_DT_OUT	O	EEPROM	Data output
68	$\overline{\text{SHFT CK}}$	O	EEPROM	Shift clock
69	$\overline{\text{CE}}$	O	EEPROM	Chip enable
70	DTC/$\overline{\text{XPCM}}$	I	Pull-up	Equipment model discrimination input. Fixed at "H" with the equipment
71	Vss	I		Power terminal (GND)
72	TX	—	Open	Not in use
73	NC	—	Open	Not in use
74	TEX	—	+5 V	Not in use
75	Vref	I	+5 V	Analog board reference voltage
76	Vfdp	I	–25 V	FL display tube driving voltage
77-80	a_-d_SEG	O	FL tube	FL Segment 'a'-'d'

IC702 DIGITAL PEAK LEVEL METER (MSM6338RS)

Pin No.	Pin Name	I/O	Description
1	DATA	I	fs serial data input (complement of 2)
2	BCK	I	fs serial data input clock (Bit clock)
3	LRCK	I	L, R channel discrimination signal for fs input ("H": Rch, "L": Lch)
4	XRESET	I	Reset input (Active: "L")
5	XWR	I	Level meter write mode (Data writing at signal start)
6	XRD	I	Level meter read mode (Active: "L")
7	XCE	I	Chip select input (Active: "L")
8	VSS	–	GND
9	D0	I/O/Z	4bit data bus (3 state terminal)
10	NC	–	Not in use
11	D1	I/O/Z	4bit data bus (3 state terminal)
12	D2	I/O/Z	
13	D3	I/O/Z	
14	A0	I	Adress input (inside resister select)
15	A1	I	
16	VDD	–	Power supply (+5V)

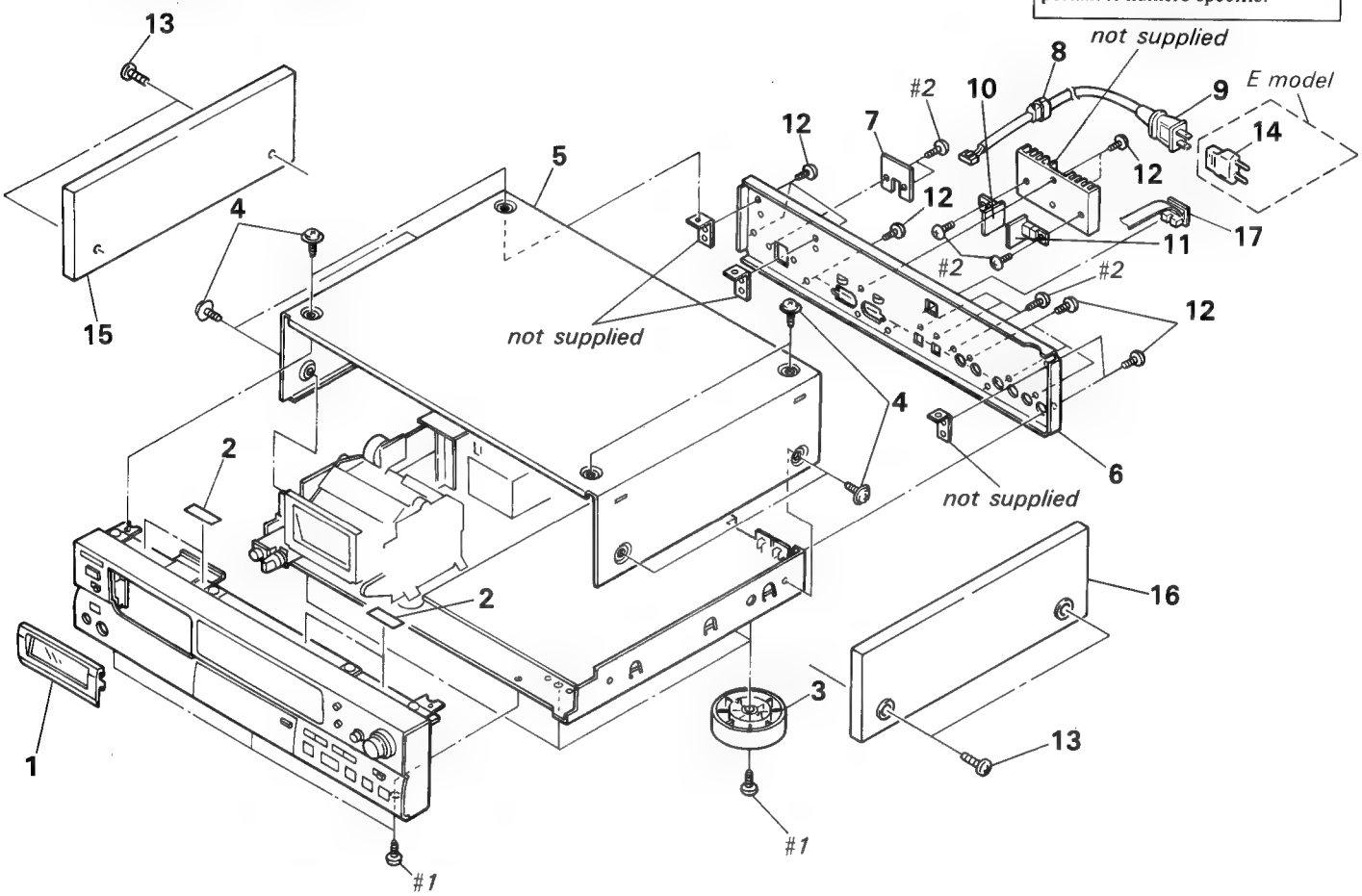
SECTION 5
EXPLODED VIEWS

NOTE:
- -xx,-x mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviations
  CND : Canadian
  G : German

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les components identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

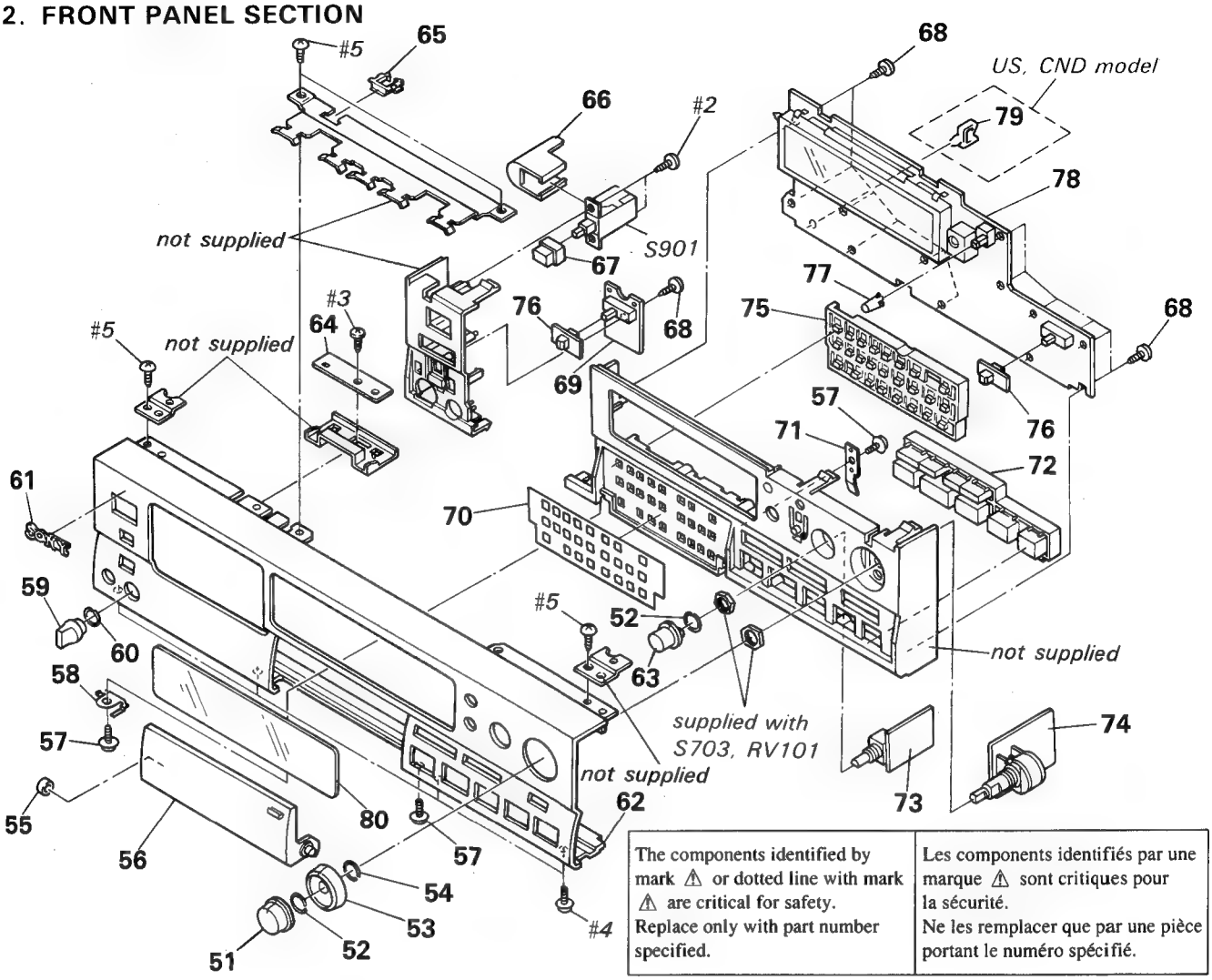
5-1. CABINET SECTION



Ref.No.	Part No.	Description	Remark
1	X-3365-595-1	PANEL (CASSETTE) ASSY (AEP,G:GOLD)	
1	X-3365-599-1	PANEL (CASSETTE) ASSY (US,CND,E/AEP,G:BLACK)	
2	3-831-441-XX	CUSHION, SPEAKER	
3	4-956-885-11	FOOT (F58175S2W) (US,CND,E/AEP,G:BLACK)	
3	4-956-885-21	FOOT (F58175S2W) (AEP,G:GOLD)	
4	3-363-099-11	SCREW (CASE 3 TP2) (AEP,G:GOLD)	
4	3-704-366-01	SCREW (CASE) (M3X8) (US,CND,E/AEP,G:BLACK)	
5	4-934-008-01	CASE (US,CND,E/AEP,G:BLACK)	
5	4-934-008-11	CASE (AEP,G/GOLD)	
*6	3-911-255-01	PANEL, BACK (US,CND)	
*6	3-911-255-11	PANEL, BACK (AEP,G:BLACK)	
*6	3-911-255-21	PANEL, BACK (E)	
*6	3-911-255-41	PANEL, BACK (AEP,G:GOLD)	
*7	4-923-873-01	BRACKET, CORD STOPPER	
*8	3-703-244-00	BUSHING (2104), CORD (AEP,G)	
8	4-916-783-01	BUSHING, CORD (US,CND,E)	

Ref.No.	Part No.	Description	Remark
⚠9	1-559-297-31	CODE, POWER (E)	
⚠9	1-559-479-11	CORD, POWER (US,CND)	
⚠9	1-575-912-11	CORD, POWER (AEP,G)	
*10	1-652-232-11	REG 6.6V BOARD	
*11	1-652-231-11	REG 5V BOARD	
12	3-703-685-21	SCREW (+BV 3X8)	
13	4-933-446-01	SCREW (SIDE PANEL) (CND,AEP,E,G)	
⚠14	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
15	X-3365-593-1	PANEL (L) ASSY, SIDE (AEP,G:GOLD)	
15	X-3365-634-1	PANEL (L) ASSY, SIDE (AEP,G:BLACK)	
15	X-3365-636-1	PANEL (L) ASSY, SIDE (CND,E)	
16	X-3365-594-1	PANEL (R) ASSY, SIDE (AEP,G:GOLD)	
16	X-3365-635-1	PANEL (R) ASSY, SIDE (AEP,G:BLACK)	
16	X-3365-637-1	PANEL (R) ASSY, SIDE (CND,E)	
17	1-590-321-71	LEAD (WITH CONNECTOR) (CONTROL-S IN) (US,CND)	

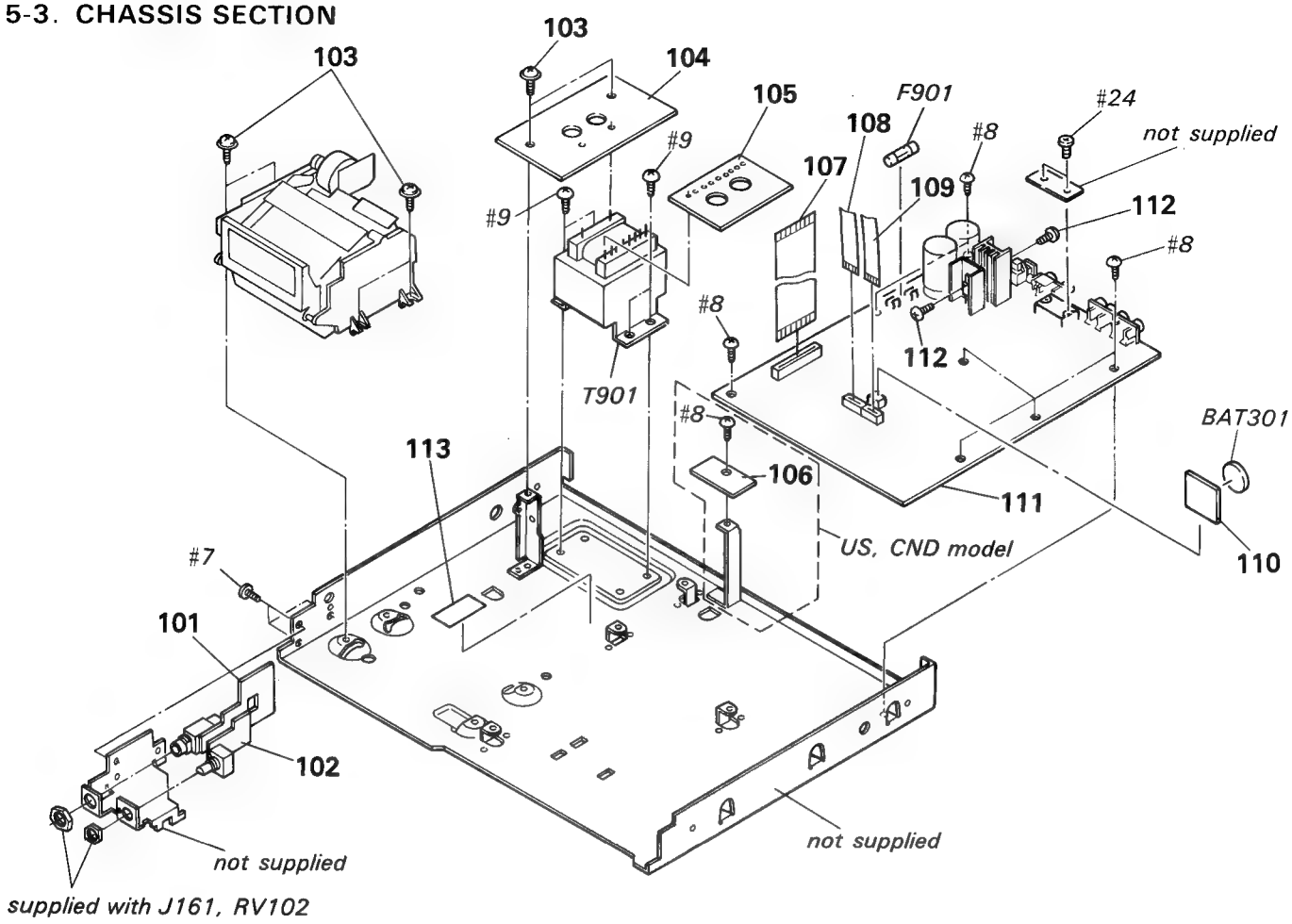
5-2. FRONT PANEL SECTION



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
51	3-382-635-01	KNOB (REC-R) (US, CND, E/AEP, G:BLACK)	
51	3-382-635-11	KNOB (REC-R) (AEP, G:GOLD)	
52	3-356-957-01	SPRING	
53	3-382-634-01	KNOB (REC-L) (US, CND, E/AEP, G:BLACK)	
53	3-382-634-11	KNOB (REC-L) (AEP, G:GOLD)	
54	3-382-627-01	SPRING, RING	
55	3-384-566-01	SPRING, RING	
56	A-2004-110-A	LID ASSY (US, CND, E/AEP, G:BLACK)	
56	A-2004-144-A	LID ASSY (AEP, G:GOLD)	
57	3-319-501-01	SCREW (+ PTPWH) (2.6X6)	
58	3-382-757-01	PLATE (GROUND)	
59	3-354-931-01	KNOB (DIA. 10) (US, CND, E/AEP, G:BLACK)	
59	3-354-931-31	KNOB (DIA. 10) (AEP, G:GOLD)	
60	3-354-981-01	SPRING (SUS), RING (US, CND, E/AEP, G:BLACK)	
60	3-356-935-01	SPRING (AEP, G:GOLD)	
61	4-942-568-01	EMBLEM (NO.5), SONY (US, CND, E/AEP, G:BLACK)	
61	4-942-568-11	EMBLEM (NO.5), SONY (AEP, G/GOLD)	
62	3-382-649-31	PANEL (FRONT) (US, CND)	
62	3-382-649-41	PANEL (FRONT) (E/AEP, G:BLACK)	
62	3-382-649-51	PANEL (FRONT) (AEP, G:GOLD)	
63	3-364-173-11	KNOB (BAL) (US, CND, E/AEP, G:BLACK)	
63	3-364-173-21	KNOB (BAL) (AEP, G:GOLD)	
*64	1-645-241-11	LED BOARD	
65	3-383-699-01	CLAMP (EDGE)	
66	3-575-524-00	COVER, POWER SWITCH	
67	4-917-460-01	KNOB, POWER (US, CND, E/AEP, G:BLACK)	
67	4-917-460-51	KNOB, POWER (AEP, G:GOLD)	
68	4-951-620-01	SCREW (2.6X8), +BVTP	
*69	1-645-243-11	TIMER SW BOARD	
70	3-382-639-02	SHEET (US, CND, E/AEP, G:BLACK)	
70	3-382-639-12	SHEET (AEP, G:GOLD)	
71	3-382-623-01	SPRING, LEAF	
72	3-382-644-01	BUTTON (MAIN) (US, CND, E/AEP, G:BLACK)	
72	3-382-644-11	BUTTON (MAIN) (AEP, G:GOLD)	
*73	1-645-240-11	INPUT SW BOARD	
*74	1-645-239-11	REC VOL BOARD	
75	3-382-628-01	BUTTON (SUB) (US, CND, E/AEP, G:BLACK)	
75	3-382-628-11	BUTTON (SUB) (AEP, G:GOLD)	
76	3-382-651-01	KNOB (US, CND, E/AEP, G:BLACK)	
76	3-382-651-11	KNOB (AEP, G:GOLD)	
77	3-911-253-01	BUTTON (DIA. 5) (US, CND, E/AEP, G:BLACK)	
77	3-911-253-11	KNOB (DIA. 5) (AEP, G:GOLD)	
*78	A-2007-199-A	DISPLAY BOARD, COMPLETE (US, CND)	
*78	A-2007-227-A	DISPLAY BOARD, COMPLETE (AEP, E, G)	
*79	3-742-419-01	CLAMP, HARNESS (US, CND)	
80	3-911-254-01	WINDOW (FL TUBE)	
⚠S901	1-554-920-21	SWITCH, PUSH (AC POWER) (1 KEY) (E)	
⚠S901	1-572-267-51	SWITCH, PUSH (AC POWER) (1 KEY) (US, CND, AEP, G)	

5-3. CHASSIS SECTION

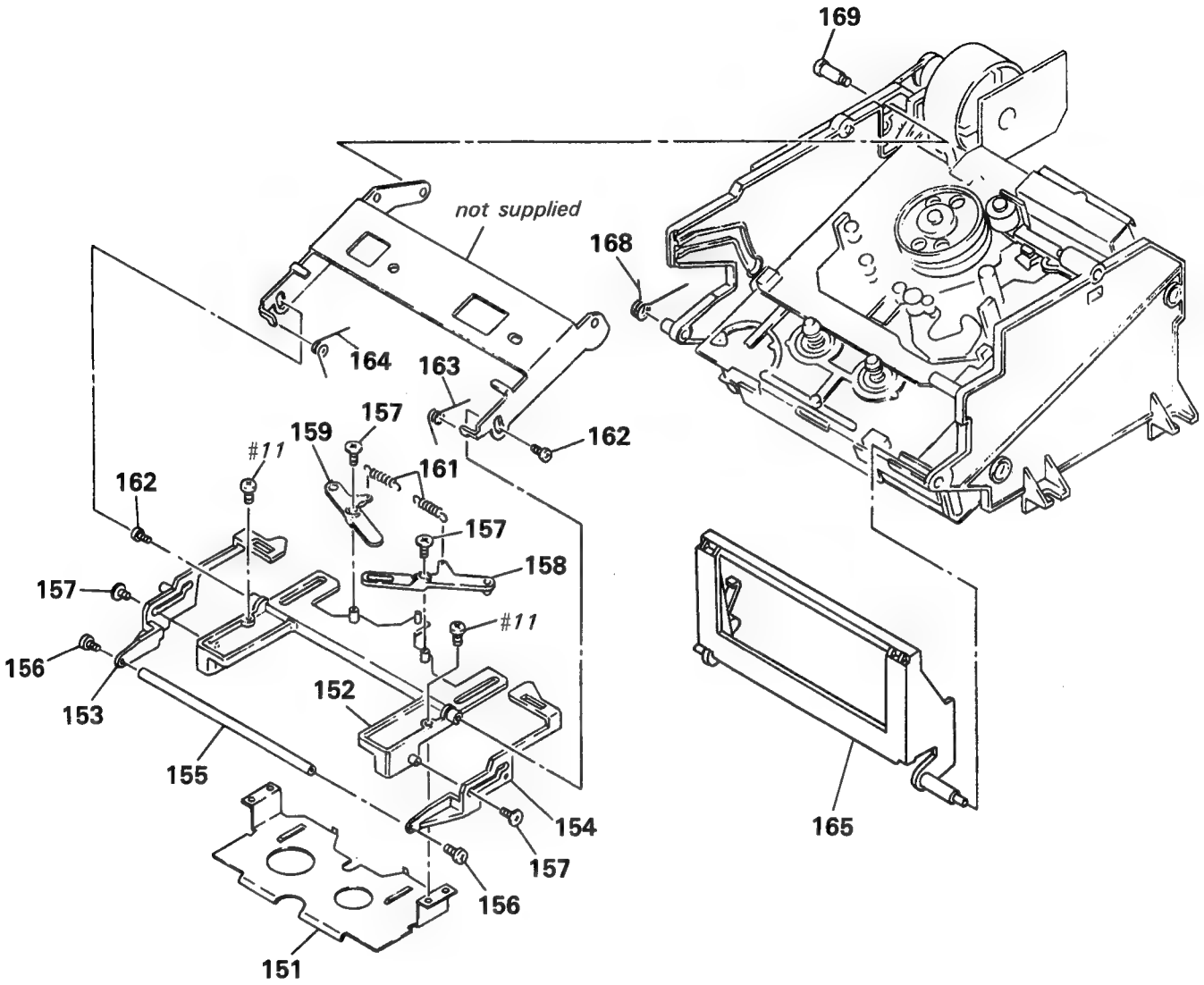


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
*101	1-645-244-11	HEADPHONE JACK BOARD	
*102	1-645-245-11	HEADPHONE VOL BOARD	
103	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6	
*104	1-652-228-11	PRIMARY BOARD (US,CND,AEP,G)	
*104	1-645-234-11	PRIMARY BOARD (E)	
*105	1-652-229-11	RELAY BOARD	
*106	1-652-230-11	CONTROL (S) BOARD (US,CND)	
107	1-590-915-11	WIRE, FLAT TYPE (30 CORE)	
108	1-765-457-11	WIRE (FLAT TYPE) (10 CORE)	
109	1-765-456-11	WIRE (FLAT TYPE) (6 CORE)	
*110	1-645-242-11	BATTERY BOARD	

Ref.No.	Part No.	Description	Remark
*111	A-2007-201-A	MAIN BOARD, COMPLETE (US,CND,E)	
*111	A-2007-229-A	MAIN BOARD, COMPLETE (AEP,G)	
112	2-259-121-01	SCREW, TR	
113	3-703-044-26	LABEL, CAUTION (US,CND)	
BAT301	1-528-229-11	BATTERY, LITHIUMCR-2450	
⚠F901	1-532-286-00	FUSE (AEP,E,G)	
⚠F901	1-576-105-11	FUSE (US,CND)	
⚠T901	1-450-556-21	TRANSFORMER, POWER (US,CND)	
⚠T901	1-450-557-21	TRANSFORMER, POWER (AEP,G)	
⚠T901	1-450-558-21	TRANSFORMER, POWER (E)	

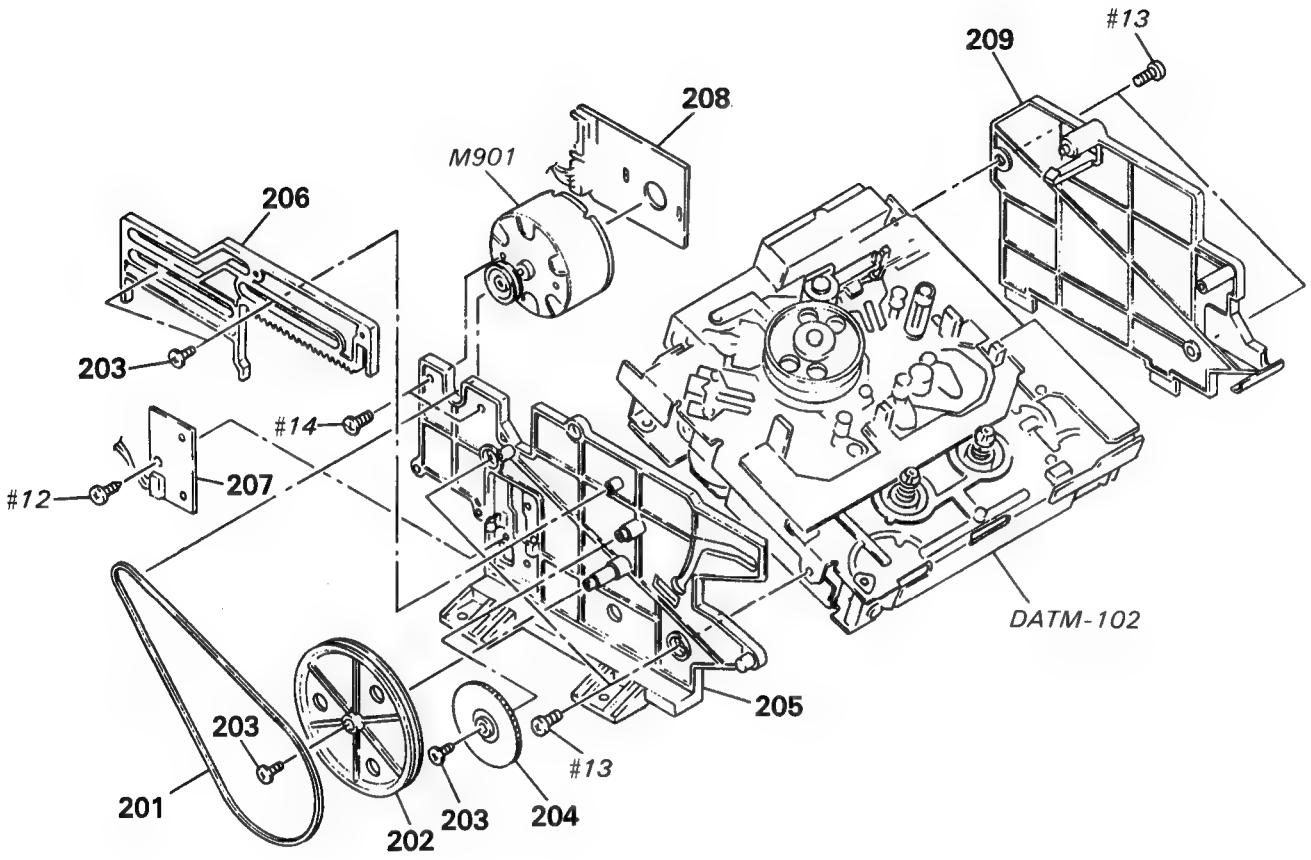
5-4. MECHANISM SECTION 1



Ref.No.	Part No.	Description	Remark
151	3-373-224-01	HOLDER (LOWER)	
152	3-373-237-03	HOLDER (UPPER), CASSETTE	
153	3-373-223-01	SLIDER (L)	
154	3-373-222-01	SLIDER (R)	
*155	3-373-217-01	SHAFT (JOINT)	
156	3-345-648-01	SCREW (M1.4X3.0), TOOTHED LOCK	
157	3-318-201-11	SCREW (B) (1.4X3), TAPPING	
158	3-373-218-01	LEVER (R)	

Ref.No.	Part No.	Description	Remark
159	3-373-219-01	LEVER (L)	
161	3-632-859-00	SPRING, BRAKE LEVER RETURN	
162	3-318-203-61	SCREW (B1.7X4), TAPPING	
163	3-373-215-01	SPRING (R), TORSION	
164	3-373-216-01	SPRING (L), TORSION	
165	3-382-648-02	HOLDER (WINDOW)	
168	3-373-212-01	SPRING (CASSETTE)	
169	4-931-471-01	SCREW (STEP)	

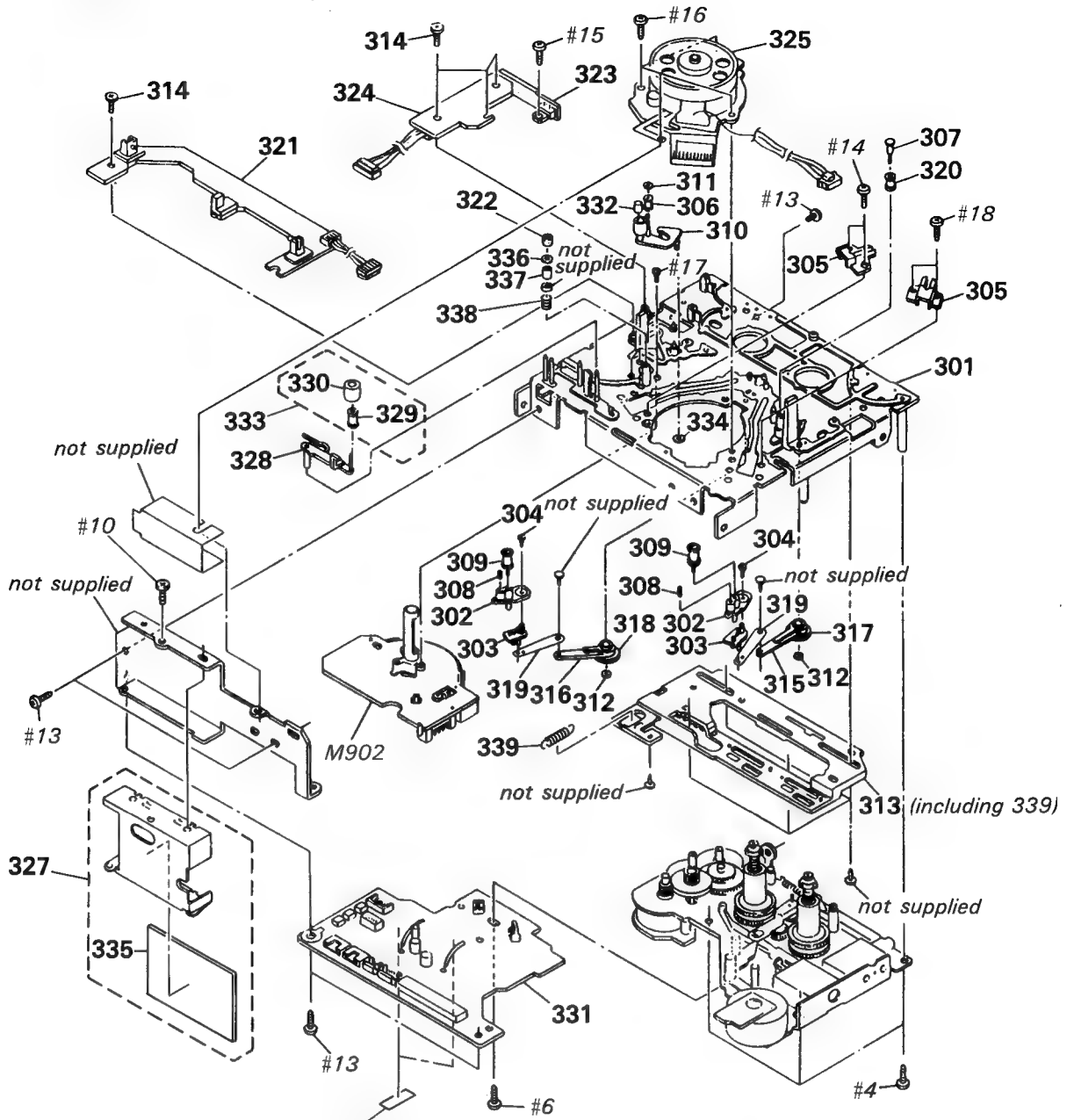
5-5. MECHANISM SECTION 2



Ref.No.	Part No.	Description	Remark
201	4-931-470-01	BELT (DRIVING)	
202	3-373-214-01	PULLEY	
203	2-623-756-01	SCREW, (B1.7X3), TAPPING	
204	3-373-213-01	GEAR, DRIVING	
205	3-373-234-05	CHASSIS (L)	

Ref.No.	Part No.	Description	Remark
206	3-373-221-01	SLIDER (RACK)	
*207	1-641-487-11	SW BOARD	
*208	1-641-486-11	MOTOR BOARD	
*209	3-373-235-01	CHASSIS (R)	
M901	A-2003-910-A	MOTOR ASSY, CASSETTE (CASSETTE COMPARTMENT)	

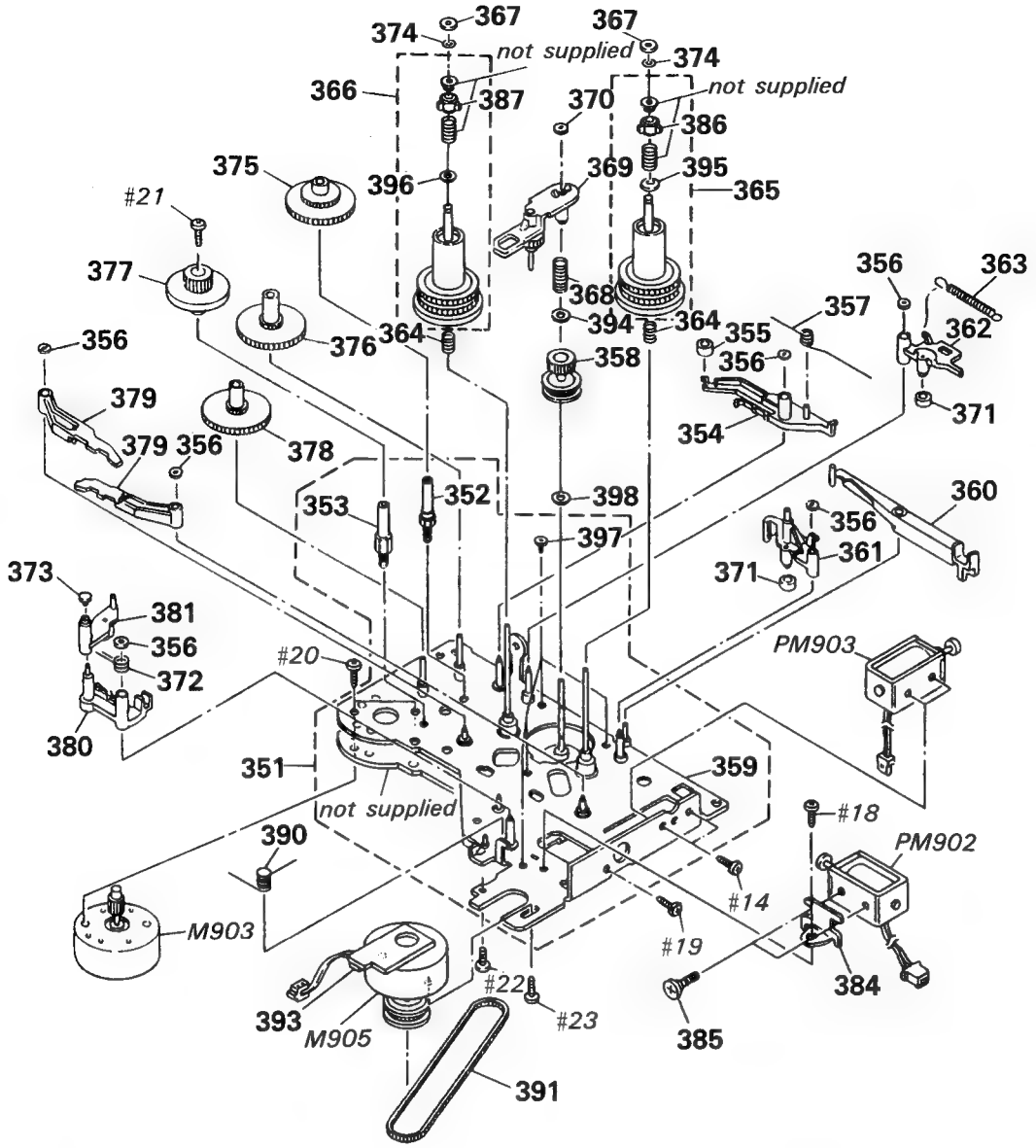
5-6. MECHANISM SECTION 3 (DATM-102)



Ref.No.	Part No.	Description	Remark
*301	X-3366-740-1	CHASSIS ASSY, MECHANICAL	
*302	3-368-390-01	BASE (#1 GUIDE)	
303	3-368-409-01	JOINT (#1 GUIDE)	
304	3-368-413-01	SCREW (1.4), +P TAPPING (B)	
*305	3-368-442-01	CATCHER	
306	3-384-243-01	GUIDE (T3), ROLLER	
307	3-368-428-01	SHAFT (ROLLER GUIDE)	
308	3-368-436-01	SPRING (#1 GUIDE), COMPRESSION	
309	X-3337-643-1	GUIDE (RIC) ASSY, ROLLER	
310	X-3363-025-1	PINCH LEVER ASSY	
311	3-315-384-01	WASHER, STOPPER	
312	3-368-398-01	BUSHING	
*313	A-2003-708-A	SLIDER ASSY, CAM	
314	3-372-761-01	SCREW (M1.7X4), TAPPING	
315	3-368-427-01	LEVER (LOAD-T)	
316	3-368-426-01	LEVER (LOAD-S)	
317	3-368-444-01	GEAR (LOAD-T)	
318	3-368-443-01	GEAR (LOAD-S)	
319	3-368-415-01	SHAFT (LOAD LEVER JOINT)	
320	3-368-399-01	GUIDE, ROLLER	

Ref.No.	Part No.	Description	Remark
*321	1-639-305-11	TOP END SENSOR BOARD	
322	3-337-605-01	NUT, ADJUSTMENT	
*323	1-639-301-11	RGN SW BOARD	
*324	1-639-306-11	CAM SLIDER BOARD	
325	8-848-567-11	DRUM ASSY DOU-03A	
326	3-831-441-XX	CUSHION, SPEAKER	
*327	A-2001-587-A	RF COMPLETE ASSY	
328	3-368-459-01	LEVER (CLEANER)	
329	3-353-812-01	COLLAR (ROLLER)	
330	3-352-518-01	ROLLER (CLEANER)	
*331	A-2056-488-A	DRUM DRIVE BOARD, COMPLETE	
332	3-337-626-01	CAP, PINCH ROLLER	
333	X-3337-655-1	ROLLER (CLEANER) ASSY	
334	3-321-813-01	WASHER, COTTER POLYETHYLENE	
*335	A-2006-455-A	RF AMP BOARD, COMPLETE	
336	3-337-677-01	FLANGE	
337	3-337-676-01	GUIDE, FIXED	
338	3-389-294-01	SPRING (T2 300G), COMPRESSION	
339	3-389-295-01	SPRING TENSION	
M902	8-835-361-01	MOTOR, DC U-17B (CAPSTAN)	

5-7. MECHANISM SECTION 4 (DATM-102)



Ref.No.	Part No.	Description	Remark
*351	A-2003-857-A	CHASSIS (REEL) ASSY	
*352	3-368-420-04	SHAFT (CAM DRIVE GEAR C)	
*353	3-368-419-04	SHAFT (CAM DRIVE GEAR D)	
*354	3-368-455-01	LEVER (GEAR LOCK)	
355	3-368-418-01	TUBE (BREAK)	
356	3-368-398-01	BUSHING	
357	3-368-430-01	SPRING (GEAR LOCK)	
358	X-3363-022-1	GEAR (REEL DRIVE) ASSY	
*359	X-3366-312-1	CHASSIS ASSY, REEL	
*360	3-368-453-01	LEVER (BRAKE SOLENOID)	
*361	3-368-447-01	LEVER (BRAKE S)	
*362	3-368-446-01	LEVER (BRAKE T)	
363	3-368-438-01	SPRING (BREAK), TENSION	
364	3-905-586-01	SPRING (FF/REW), COMPRESSION	
365	A-2003-709-A	TABLE (S) ASSY, REEL	
366	A-2003-710-D	TABLE (T) ASSY, REEL	
367	3-578-224-00	WASHER	
368	3-368-435-01	SPRING (FR LEVER), COMPRESSION	
369	X-3364-581-3	LEVER (F/R) ASSY	
370	3-315-384-31	WASHER, STOPPER	
371	3-377-332-01	TUBE (BREAK2)	
372	3-383-478-01	SPRING (B,T LEVER RETURN)	
373	3-368-415-01	SHAFT (LOAD LEVER JOINT)	
374	3-315-384-01	WASHER, STOPPER	

Ref.No.	Part No.	Description	Remark
375	3-368-421-01	GEAR (CAM DRIVE C)	
376	3-373-039-01	GEAR (CAM DRIVE B)	
377	3-368-403-01	GEAR (CAM DRIVE D)	
378	3-368-402-01	GEAR (CAM DRIVE A,B)	
379	X-3363-024-1	LEVER (BT) ASSY	
*380	3-368-451-01	LEVER (BT SOLENOID)	
*381	3-368-454-01	LEVER (BT SELECTION)	
*384	3-368-416-01	BRACKET (B.T SOLENOID)	
385	3-368-423-01	SCREW (M2.6), STEP	
386	2-623-736-01	CLAW (C) (LEFT), REEL	
387	2-623-752-01	CLAW (C) (RIGHT), REEL	
390	3-368-431-01	SPRING (B.T SOLENOID)	
391	3-368-417-01	BELT (170TN10-1.0T), TIMING	
*393	1-639-304-11	REEL MOTOR BOARD	
394	3-368-422-11	POLY-SLIDER(DIA. 5.5-DIA. 1.5)	
395	3-701-443-11	WASHER	
396	3-701-443-21	WASHER, 5 DIA.	
397	2-623-756-01	SCREW, (B1.7X3), TAPPING	
398	3-701-436-01	WASHER, 1.6	
M903	X-3363-109-1	MOTOR (CAM) ASSY	
M905	X-3363-110-2	MOTOR (REEL) ASSY	
PM902	1-454-536-11	SOLENOID, PLUNGER (BT CONTROL)	
PM903	1-454-535-11	SOLENOID, PLUNGER (BRAKE)	

SECTION 6
ELECTRICAL PARTS LIST

BATTERY | CAM SLIDER | CONTROL (S) | DISPLAY

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA··· : μA···, uPA··· : μPA···, uPB··· : μPB···, uPC··· : μPC···, uPD··· : μPD···
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Abbreviations
  CND : Canadian
  G : German

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les components identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
*	1-645-242-11	BATTERY BOARD	
		**********	
		< BATTERY >	
⚠BAT301	1-528-229-11	BATTERY, LITHIUM(CR-2450)	
		< CONNECTOR >	
*CN371	1-564-337-00	PIN, CONNECTOR 3P	(US,CND)
*CN381	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P	(US,CND)
**********			
*	1-639-306-11	CAM SLIDER BOARD	
		**********	
		< JUMPER RESISTOR >	
JW04	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JW05	1-216-296-91	METAL GLAZE 0 5% 1/8W	
		< SWITCH >	
SW1	1-570-953-11	SWITCH, PUSH (1 KEY) (STOP DET)	
SW2	1-570-953-11	SWITCH, PUSH (1 KEY) (FWD DET)	
**********			
*	1-652-230-11	CONTROL (S) BOARD	(US,CND)
		**********	
		< CAPACITOR >	
C801	1-164-159-11	CERAMIC 0.1uF 50V	
C802	1-164-159-11	CERAMIC 0.1uF 50V	
		< CONNECTOR >	
CN801	1-558-350-21	CORD (WITH CONNECTOR)	
CN831	1-580-771-11	PIN, CONNECTOR (PC BOARD) 3P	

Ref.No.	Part No.	Description	Remark
		< DIODE >	
D801	8-719-107-94	DIODE 1SS202-1	
D802	8-719-107-94	DIODE 1SS202-1	
		< RESISTOR >	
R801	1-249-393-11	CARBON 10 5% 1/4W	
R802	1-249-429-11	CARBON 10K 5% 1/4W	
R803	1-249-429-11	CARBON 10K 5% 1/4W	
R804	1-247-807-31	CARBON 100 5% 1/4W	
R805	1-249-429-11	CARBON 10K 5% 1/4W	
R806	1-249-429-11	CARBON 10K 5% 1/4W	
**********			
*	A-2007-227-A	DISPLAY BOARD, COMPLETE (AEP,E,G)	
*	A-2007-199-A	DISPLAY BOARD, COMPLETE (US,CND)	
		**********	
	9-911-839-XX	CUSHION	
*	4-922-523-01	HOLDER (RIGHT)	
*	4-922-524-01	HOLDER (LEFT)	
*	4-937-336-01	HOLDER, LED	
		< CAPACITOR >	
C701	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C702	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C703	1-124-584-00	ELECT 100uF 20% 10V	
C704	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C705	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C706	1-161-379-00	CERAMIC 0.01uF 20% 25V	
		< CONNECTOR >	
*CN398	1-569-499-11	PIN, CONNECTOR 3P	
CN731	1-691-992-11	PIN, CONNECTOR (PC BOARD) 3P	

DISPLAY

Ref.No.	Part No.	Description	Remark
CN751	1-568-853-11	SOCKET, CONNECTOR 10P	
CN752	1-568-849-11	SOCKET, CONNECTOR 6P	
*CN771	1-564-337-00	PIN, CONNECTOR 3P	
		< CONPOSITION CIRCUIT BLOCK >	
CP701	1-233-140-11	COMPOSITION CIRCUIT BLOCK	
CP702	1-233-140-11	COMPOSITION CIRCUIT BLOCK	
CP703	1-233-140-11	COMPOSITION CIRCUIT BLOCK	
CP704	1-233-140-11	COMPOSITION CIRCUIT BLOCK	
		< DIODE >	
D781	8-719-302-52	LED SEL1410E (SBM)	
		< FLUORESCENT INDICATOR TUBE >	
FL701	1-519-672-21	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC701	8-752-854-47	IC CXP5058H-661Q	
IC702	8-759-995-09	IC MSM6338RS	
IC703	8-752-330-61	IC CXK1013P	
IC704	8-749-922-36	IC GP1U50XB	
IC705	8-759-140-11	IC UPD4011BC	(US, CND)
		< COIL >	
L180	1-236-163-11	ENCAPSULATED COMPONENT	
L280	1-236-163-11	ENCAPSULATED COMPONENT	
		< TRANSISTOR >	
Q701	8-729-902-11	TRANSISTOR 2SC2021-Q	
Q702	8-729-902-11	TRANSISTOR 2SC2021-Q	
Q703	8-729-902-11	TRANSISTOR 2SC2021-Q	
Q791	8-729-900-38	TRANSISTOR DTA114EF	
		< RESISTOR >	
R701	1-249-441-11	CARBON 100K 5% 1/4W	
R702	1-249-441-11	CARBON 100K 5% 1/4W	
R703	1-249-441-11	CARBON 100K 5% 1/4W	
R708	1-249-429-11	CARBON 10K 5% 1/4W	
R709	1-249-422-11	CARBON 2.7K 5% 1/4W	
R710	1-249-424-11	CARBON 3.9K 5% 1/4W	
R711	1-249-427-11	CARBON 6.8K 5% 1/4W	
R712	1-249-432-11	CARBON 18K 5% 1/4W	
R713	1-249-429-11	CARBON 10K 5% 1/4W	
R714	1-249-422-11	CARBON 2.7K 5% 1/4W	
R715	1-249-424-11	CARBON 3.9K 5% 1/4W	
R716	1-249-429-11	CARBON 10K 5% 1/4W	
R717	1-249-422-11	CARBON 2.7K 5% 1/4W	
R718	1-249-424-11	CARBON 3.9K 5% 1/4W	
R719	1-249-427-11	CARBON 6.8K 5% 1/4W	

Ref.No.	Part No.	Description	Remark
R720	1-249-432-11	CARBON 18K 5% 1/4W	
R721	1-249-429-11	CARBON 10K 5% 1/4W	
R722	1-249-422-11	CARBON 2.7K 5% 1/4W	
R723	1-249-424-11	CARBON 3.9K 5% 1/4W	
R724	1-249-427-11	CARBON 6.8K 5% 1/4W	
R725	1-249-432-11	CARBON 18K 5% 1/4W	
R726	1-249-429-11	CARBON 10K 5% 1/4W	
R727	1-249-422-11	CARBON 2.7K 5% 1/4W	
R728	1-249-424-11	CARBON 3.9K 5% 1/4W	
R729	1-249-427-11	CARBON 6.8K 5% 1/4W	
R730	1-249-432-11	CARBON 18K 5% 1/4W	
R731	1-249-429-11	CARBON 10K 5% 1/4W	
R732	1-249-422-11	CARBON 2.7K 5% 1/4W	
R733	1-249-424-11	CARBON 3.9K 5% 1/4W	
R734	1-249-429-11	CARBON 10K 5% 1/4W	
R736	1-249-422-11	CARBON 2.7K 5% 1/4W	
R737	1-249-424-11	CARBON 3.9K 5% 1/4W	
R738	1-249-427-11	CARBON 6.8K 5% 1/4W	
R739	1-249-429-11	CARBON 10K 5% 1/4W	
R740	1-249-422-11	CARBON 2.7K 5% 1/4W	
R741	1-249-424-11	CARBON 3.9K 5% 1/4W	
R742	1-249-427-11	CARBON 6.8K 5% 1/4W	
R743	1-249-432-11	CARBON 18K 5% 1/4W	
R744	1-249-437-11	CARBON 47K 5% 1/4W	
R745	1-249-437-11	CARBON 47K 5% 1/4W	
R746	1-249-437-11	CARBON 47K 5% 1/4W	
R747	1-249-437-11	CARBON 47K 5% 1/4W	
R748	1-249-437-11	CARBON 47K 5% 1/4W	
R749	1-249-437-11	CARBON 47K 5% 1/4W	
R750	1-249-437-11	CARBON 47K 5% 1/4W	
R751	1-249-437-11	CARBON 47K 5% 1/4W	
R752	1-249-437-11	CARBON 47K 5% 1/4W	
R753	1-249-437-11	CARBON 47K 5% 1/4W	
R754	1-249-437-11	CARBON 47K 5% 1/4W	
R755	1-249-437-11	CARBON 47K 5% 1/4W	
R756	1-249-437-11	CARBON 47K 5% 1/4W	(AEP, E, G)
R757	1-249-437-11	CARBON 47K 5% 1/4W	(US, CND)
R758	1-249-409-11	CARBON 220 5% 1/4W	
R759	1-249-432-11	CARBON 18K 5% 1/4W	
R781	1-249-408-11	CARBON 180 5% 1/4W	
		< SWITCH >	
S704	1-554-303-21	SWITCH, TACTILE (COUNTER MODE)	
S705	1-692-478-11	SWITCH, SLIDE (REC MODE)	
S706	1-554-303-21	SWITCH, TACTILE (1)	
S707	1-554-303-21	SWITCH, TACTILE (2)	
S708	1-554-303-21	SWITCH, TACTILE (3)	
S709	1-554-303-21	SWITCH, TACTILE (4)	
S710	1-554-303-21	SWITCH, TACTILE (5)	

Ref.No.	Part No.	Description			Remark
S711	1-554-303-21	SWITCH, TACTILE (6)			
S712	1-554-303-21	SWITCH, TACTILE (7)			
S713	1-554-303-21	SWITCH, TACTILE (8)			
S714	1-554-303-21	SWITCH, TACTILE (9)			
S715	1-554-303-21	SWITCH, TACTILE (0)			
S716	1-554-303-21	SWITCH, TACTILE (MUSIC SCAN)			
S717	1-554-303-21	SWITCH, TACTILE (FADER)			
S718	1-554-303-21	SWITCH, TACTILE (MARGIN RESET)			
S719	1-554-303-21	SWITCH, TACTILE (CLEAR)			
S720	1-554-303-21	SWITCH, TACTILE (DATE RECORDET)			
S721	1-554-303-21	SWITCH, TACTILE (DATE PRESET)			
S722	1-554-303-21	SWITCH, TACTILE (DATE CLOCK SET)			
S723	1-554-303-21	SWITCH, TACTILE (AUTO)			
S724	1-554-303-21	SWITCH, TACTILE (RENUMBER)			
S725	1-554-303-21	SWITCH, TACTILE (START ID WRITE)			
S726	1-554-303-21	SWITCH, TACTILE (SKIP ID WRITE)			
S727	1-554-303-21	SWITCH, TACTILE (END ID WRITE)			
S728	1-554-303-21	SWITCH, TACTILE (START ID ERASE)			
S729	1-554-303-21	SWITCH, TACTILE (SKIP ID ERASE)			
S730	1-554-303-21	SWITCH, TACTILE (END ID ERASE)			
S731	1-554-303-21	SWITCH, TACTILE (■)			
S732	1-554-303-21	SWITCH, TACTILE (▶)			
S733	1-554-303-21	SWITCH, TACTILE (AMS ⏮)			
S734	1-554-303-21	SWITCH, TACTILE (AMS ⏭)			
S735	1-554-303-21	SWITCH, TACTILE (◀◀)			
S736	1-554-303-21	SWITCH, TACTILE (▶▶)			
S737	1-554-303-21	SWITCH, TACTILE (●REC)			
S738	1-554-303-21	SWITCH, TACTILE (❚❚PAUSE)			
S739	1-554-303-21	SWITCH, TACTILE (○REC MUTE)			
S741	1-554-118-00	SWITCH, PUSH (1 KEY) (SBM)			
		< VIBRATOR >			
X701	1-577-359-21	VIBRATOR, CERAMIC (4.19MHz)			
**********					
*	A-2056-488-A	DRUM DRIVE BOARD, COMPLETE			
		**********			
*	3-343-491-01	HOLDER (S SENSOR B)			
*	4-870-539-00	PLATE, GROUND			
		< CAPACITOR >			
C01	1-126-176-11	ELECT	220uF	20%	10V
C02	1-126-157-11	ELECT	10uF	20%	16V
C03	1-124-257-00	ELECT	2.2uF	20%	50V
C04	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C05	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C08	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C21	1-163-001-11	CERAMIC CHIP	220PF	10%	50V

Ref.No.	Part No.	Description			Remark
C31	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C32	1-164-232-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
*CN01	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
*CN02	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
*CN03	1-564-338-00	PIN, CONNECTOR 4P			
*CN04	1-564-336-00	PIN, CONNECTOR 2P			
*CN06	1-564-339-00	PIN, CONNECTOR 5P			
CN07	1-564-721-11	PIN, CONNECTOR (SMALL TYPE) 5P			
*CN08	1-568-872-11	SOCKET, CONNECTOR 30P			
*CN09	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
*CN10	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
		< IC >			
IC01	8-759-107-68	IC CX20115A			
IC02	8-759-502-80	IC LM358M			
IC03	8-759-502-80	IC LM358M			
		< JUMPER RESISTOR >			
JW06	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW07	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW08	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW09	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW10	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW11	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW12	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW13	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW14	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW15	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW16	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW17	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW18	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW19	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW20	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW21	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW22	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW23	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW24	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW25	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW26	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW27	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW28	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW29	1-216-296-91	METAL GLAZE	0	5%	1/8W
JW30	1-216-296-91	METAL GLAZE	0	5%	1/8W
		< PHOTO INTERRUPTER >			
PH01	8-719-939-23	PHOTO INTERRUPTER	GP-2S09-C		
PH02	8-719-939-23	PHOTO INTERRUPTER	GP-2S09-C		

DRUM DRIVE | HEADPHONE JACK | HEADPHONE VOL | INPUT SW | LED | MAIN

Ref.No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q01	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q02	8-729-101-07	TRANSISTOR	2SB798-DL		
		< RESISTOR >			
R01	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R02	1-216-075-00	METAL CHIP	12K	5%	1/10W
R03	1-216-029-00	METAL CHIP	150	5%	1/10W
R04	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R05	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R06	1-216-085-00	METAL CHIP	33K	5%	1/10W
R07	1-216-025-00	METAL CHIP	100	5%	1/10W
R08	1-216-049-00	METAL CHIP	1K	5%	1/10W
R09	1-216-073-00	METAL CHIP	10K	5%	1/10W
R10	1-216-073-00	METAL CHIP	10K	5%	1/10W
R11	1-216-073-00	METAL CHIP	10K	5%	1/10W
R12	1-216-089-00	METAL CHIP	47K	5%	1/10W
R13	1-216-073-00	METAL CHIP	10K	5%	1/10W
R14	1-216-037-00	METAL CHIP	330	5%	1/10W
R21	1-216-073-00	METAL CHIP	10K	5%	1/10W
R22	1-216-081-00	METAL CHIP	22K	5%	1/10W
R23	1-216-077-00	METAL CHIP	15K	5%	1/10W
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R25	1-216-103-91	METAL GLAZE	180K	5%	1/10W
R26	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R31	1-216-073-00	METAL CHIP	10K	5%	1/10W
R32	1-216-081-00	METAL CHIP	22K	5%	1/10W
R35	1-216-103-91	METAL GLAZE	180K	5%	1/10W
R36	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
**********					
*	1-645-244-11	HEADPHONE JACK BOARD			
		**********			
		< CAPACITOR >			
C180	1-162-290-31	CERAMIC	470PF	10%	50V
C280	1-162-290-31	CERAMIC	470PF	10%	50V
C451	1-126-024-11	ELECT	220uF	20%	25V
C452	1-126-024-11	ELECT	220uF	20%	25V
		< CONNECTOR >			
CN108	1-691-768-11	PLUG (MICRO CONNECTOR) 6P			
		< IC >			
IC401	8-759-634-50	IC M5218AL			
		< JACK >			
J161	1-565-327-11	JACK, LARGE TYPE 1P (PHONES)			

Ref.No.	Part No.	Description			Remark
		< RESISTOR >			
R128	1-259-468-11	CARBON	47K	5%	1/6W
R129	1-259-444-11	CARBON	4.7K	5%	1/6W
R130	1-259-468-11	CARBON	47K	5%	1/6W
R131	1-259-412-11	CARBON	220	5%	1/6W
R228	1-259-468-11	CARBON	47K	5%	1/6W
R229	1-259-444-11	CARBON	4.7K	5%	1/6W
R230	1-259-468-11	CARBON	47K	5%	1/6W
R231	1-259-412-11	CARBON	220	5%	1/6W
**********					
*	1-645-245-11	HEADPHONE VOL BOARD			
		**********			
		< VARIABLE RESISTOR >			
RV102	1-241-537-11	RES, VAR, CARBON 20K/20K (PHONES LEVEL)			
**********					
*	1-645-240-11	INPUT SW BOARD			
		**********			
		< CONNECTOR >			
*CN772	1-564-336-00	PIN, CONNECTOR 2P			
		< RESISTOR >			
R706	1-249-427-11	CARBON	6.8K	5%	1/4W
R707	1-249-432-11	CARBON	18K	5%	1/4W
		< SWITCH >			
S703	1-572-758-11	SWITCH, ROTARY (INPUT)			
**********					
*	1-645-241-11	LED BOARD			
		*********			
		< DIODE >			
D701	8-719-421-98	LED LN01401C(Q)-3-LF			
D702	8-719-421-98	LED LN01401C(Q)-3-LF			
**********					
*	A-2007-201-A	MAIN BOARD, COMPLETE (US,CND,E)			
*	A-2007-229-A	MAIN BOARD, COMPLETE (AEP,G)			
		**********			
	1-533-293-11	HOLDER, FUSE			
	2-259-121-01	SCREW, TR			
*	3-346-266-12	PLATE, GROUND			
*	4-363-146-71	HEAT SINK, V.OUT			
*	4-870-539-00	PLATE, GROUND			(US,CND,E)
*	4-880-403-11	HEAT SINK			

Ref.No.	Part No.	Description			Remark
		< CAPACITOR >			
C110	1-136-275-11	FILM	390PF	5%	630V
C112	1-136-437-11	FILM	220PF	5%	630V
C113	1-136-437-11	FILM	220PF	5%	630V
C114	1-136-433-11	FILM	100PF	5%	630V
C115	1-136-433-11	FILM	100PF	5%	630V
C117	1-130-471-00	MYLAR	0.001uF	5%	50V
C118	1-130-478-00	MYLAR	0.0039uF	5%	50V
C120	1-126-023-11	ELECT	100uF	20%	25V
C121	1-130-467-00	FILM	470PF	5%	50V
C150	1-126-023-11	ELECT	100uF	20%	25V
C151	1-126-023-11	ELECT	100uF	20%	25V
C152	1-130-481-00	FILM	6800PF	5%	50V
C210	1-136-275-11	FILM	390PF	5%	630V
C212	1-136-437-11	FILM	220PF	5%	630V
C213	1-136-437-11	FILM	220PF	5%	630V
C214	1-136-433-11	FILM	100PF	5%	630V
C215	1-136-433-11	FILM	100PF	5%	630V
C217	1-130-471-00	MYLAR	0.001uF	5%	50V
C218	1-130-478-00	MYLAR	0.0039uF	5%	50V
C220	1-126-023-11	ELECT	100uF	20%	25V
C221	1-130-467-00	FILM	470PF	5%	50V
C250	1-126-023-11	ELECT	100uF	20%	25V
C251	1-126-023-11	ELECT	100uF	20%	25V
C252	1-130-481-00	FILM	6800PF	5%	50V
C300	1-162-294-31	CERAMIC	0.001uF	10%	50V
C301	1-164-159-11	CERAMIC	0.1uF		50V
C302	1-164-159-11	CERAMIC	0.1uF		50V
C303	1-162-211-31	CERAMIC	33PF	5%	50V
C304	1-126-059-11	ELECT	10uF	20%	50V
C305	1-162-306-11	CERAMIC	0.01uF	20%	16V
C306	1-164-159-11	CERAMIC	0.1uF		50V
C307	1-162-280-31	CERAMIC	82PF	10%	50V
C308	1-164-159-11	CERAMIC	0.1uF		50V
C309	1-124-983-11	ELECT	330uF	20%	6.3V
C310	1-136-177-00	FILM	1uF	5%	50V
C311	1-162-279-31	CERAMIC	75PF	10%	50V
C314	1-162-199-31	CERAMIC	10PF	5%	50V
C315	1-162-294-31	CERAMIC	0.001uF	10%	50V
C316	1-162-199-31	CERAMIC	10PF	5%	50V
C317	1-162-201-31	CERAMIC	12PF	5%	50V
C318	1-162-201-31	CERAMIC	12PF	5%	50V
C319	1-164-159-11	CERAMIC	0.1uF		50V
C326	1-162-201-31	CERAMIC	12PF	5%	50V
C327	1-162-201-31	CERAMIC	12PF	5%	50V
C328	1-124-903-11	ELECT	1uF	20%	50V
C329	1-162-294-31	CERAMIC	0.001uF	10%	50V
C330	1-162-294-31	CERAMIC	0.001uF	10%	50V

Ref.No.	Part No.	Description			Remark
C331	1-162-294-31	CERAMIC	0.001uF	10%	50V
C332	1-162-293-31	CERAMIC	820PF	10%	50V
C333	1-162-283-31	CERAMIC	120PF	10%	50V
C334	1-161-375-00	CERAMIC	0.0022uF	20%	50V
C335	1-161-375-00	CERAMIC	0.0022uF	20%	50V
C336	1-162-289-31	CERAMIC	390PF	10%	50V
C337	1-161-329-00	CERAMIC	0.0068uF	30%	16V
C338	1-162-306-11	CERAMIC	0.01uF	20%	16V
C339	1-162-306-11	CERAMIC	0.01uF	20%	16V
C340	1-162-290-31	CERAMIC	470PF	10%	50V
C341	1-162-306-11	CERAMIC	0.01uF	20%	16V
C342	1-126-059-11	ELECT	10uF	20%	50V
C343	1-162-306-11	CERAMIC	0.01uF	20%	16V
C344	1-162-306-11	CERAMIC	0.01uF	20%	16V
C345	1-162-209-31	CERAMIC	27PF	5%	50V
C346	1-162-205-31	CERAMIC	18PF	5%	50V
C347	1-162-294-31	CERAMIC	0.001uF	10%	50V
C348	1-126-059-11	ELECT	10uF	20%	50V
C351	1-136-165-00	FILM	0.1uF	5%	50V
C352	1-136-165-00	FILM	0.1uF	5%	50V
C353	1-136-165-00	FILM	0.1uF	5%	50V
C354	1-124-997-11	ELECT	470uF	20%	10V
C355	1-162-306-11	CERAMIC	0.01uF	20%	16V
C362	1-126-043-11	ELECT	0.47uF	20%	50V
C363	1-126-059-11	ELECT	10uF	20%	50V
C402	1-164-159-11	CERAMIC	0.1uF		50V
C405	1-126-023-11	ELECT	100uF	20%	25V
C406	1-136-165-00	FILM	0.1uF	5%	50V
C407	1-136-165-00	FILM	0.1uF	5%	50V
C409	1-124-997-11	ELECT	470uF	20%	10V
C411	1-124-997-11	ELECT	470uF	20%	10V
C417	1-164-159-11	CERAMIC	0.1uF		50V
C418	1-162-306-11	CERAMIC	0.01uF	20%	16V
C420	1-126-023-11	ELECT	100uF	20%	25V
C426	1-136-165-00	FILM	0.1uF	5%	50V
C427	1-136-165-00	FILM	0.1uF	5%	50V
C428	1-136-165-00	FILM	0.1uF	5%	50V
C429	1-136-165-00	FILM	0.1uF	5%	50V
C430	1-126-059-11	ELECT	10uF	20%	50V
C431	1-126-059-11	ELECT	10uF	20%	50V
C439	1-164-159-11	CERAMIC	0.1uF		50V
C440	1-126-916-11	ELECT	1000uF	20%	6.3V
C441	1-164-159-11	CERAMIC	0.1uF		50V
C442	1-164-159-11	CERAMIC	0.1uF		50V
C446	1-164-159-11	CERAMIC	0.1uF		50V
C447	1-164-159-11	CERAMIC	0.1uF		50V
C448	1-164-159-11	CERAMIC	0.1uF		50V
C449	1-164-159-11	CERAMIC	0.1uF		50V

MAIN

Ref.No.	Part No.	Description			Remark
C450	1-136-165-00	FILM	0.1uF	5% 50V	
C451	1-136-165-00	FILM	0.1uF	5% 50V	
C461	1-164-159-11	CERAMIC	0.1uF	50V	
C462	1-164-159-11	CERAMIC	0.1uF	50V	
C465	1-130-467-00	FILM	470PF	5% 50V	
C466	1-130-467-00	FILM	470PF	5% 50V	
C470	1-164-159-11	CERAMIC	0.1uF	50V	
C471	1-164-159-11	CERAMIC	0.1uF	50V	
C472	1-164-159-11	CERAMIC	0.1uF	50V	
C473	1-164-159-11	CERAMIC	0.1uF	50V	
C474	1-164-159-11	CERAMIC	0.1uF	50V	
C499	1-126-058-11	ELECT	4.7uF	20% 25V	
C501	1-130-479-00	MYLAR	0.0047uF	5% 50V	
C502	1-162-219-31	CERAMIC	68PF	5% 50V	
C503	1-162-199-31	CERAMIC	10PF	5% 50V	
C504	1-126-059-11	ELECT	10uF	20% 50V	
C505	1-162-215-31	CERAMIC	47PF	5% 50V	
C506	1-162-199-31	CERAMIC	10PF	5% 50V	
C507	1-136-153-00	FILM	0.01uF	5% 50V	
C508	1-136-158-00	FILM	0.027uF	5% 50V	
C512	1-164-159-11	CERAMIC	0.1uF	50V	
C513	1-126-023-11	ELECT	100uF	20% 25V	
C514	1-164-159-11	CERAMIC	0.1uF	50V	
C515	1-136-169-00	FILM	0.22uF	5% 50V	
C516	1-164-159-11	CERAMIC	0.1uF	50V	
C550	1-136-161-00	FILM	0.047uF	5% 50V	
C551	1-162-306-11	CERAMIC	0.01uF	20% 16V	
C552	1-162-294-31	CERAMIC	0.001uF	10% 50V	
C553	1-162-219-31	CERAMIC	68PF	5% 50V	
C554	1-164-159-11	CERAMIC	0.1uF	50V	
C555	1-162-179-11	CERAMIC	0.1uF	50V	
C601	1-126-023-11	ELECT	100uF	20% 25V	
C602	1-126-023-11	ELECT	100uF	20% 25V	
C603	1-126-023-11	ELECT	100uF	20% 25V	
C604	1-126-023-11	ELECT	100uF	20% 25V	
C605	1-126-023-11	ELECT	100uF	20% 25V	
C606	1-126-023-11	ELECT	100uF	20% 25V	
C607	1-126-023-11	ELECT	100uF	20% 25V	
C608	1-126-023-11	ELECT	100uF	20% 25V	
C609	1-126-023-11	ELECT	100uF	20% 25V	
C610	1-136-165-00	FILM	0.1uF	5% 50V	
C611	1-136-165-00	FILM	0.1uF	5% 50V	
C612	1-136-165-00	FILM	0.1uF	5% 50V	
C613	1-136-165-00	FILM	0.1uF	5% 50V	
C614	1-136-165-00	FILM	0.1uF	5% 50V	
C615	1-136-165-00	FILM	0.1uF	5% 50V	
C616	1-136-165-00	FILM	0.1uF	5% 50V	
C617	1-136-165-00	FILM	0.1uF	5% 50V	
C618	1-136-165-00	FILM	0.1uF	5% 50V	

Ref.No.	Part No.	Description			Remark
C621	1-136-165-00	FILM	0.1uF	5% 50V	
C622	1-136-165-00	FILM	0.1uF	5% 50V	
C623	1-136-165-00	FILM	0.1uF	5% 50V	
C624	1-126-023-11	ELECT	100uF	20% 25V	
C625	1-126-013-11	ELECT	1000uF	20% 16V	
C641	1-164-159-11	CERAMIC	0.1uF	50V	
C642	1-164-159-11	CERAMIC	0.1uF	50V	
C643	1-164-159-11	CERAMIC	0.1uF	50V	
C650	1-136-165-00	FILM	0.1uF	5% 50V	
C651	1-136-165-00	FILM	0.1uF	5% 50V	
C699	1-164-159-11	CERAMIC	0.1uF	50V	
C907	1-126-946-11	ELECT	6800uF	20% 25V	
C909	1-126-926-11	ELECT	1000uF	20% 10V	
C912	1-126-926-11	ELECT	1000uF	20% 10V	
C913	1-124-484-11	ELECT	220uF	20% 35V	
C914	1-124-484-11	ELECT	220uF	20% 35V	
C916	1-124-122-11	ELECT	100uF	20% 50V	
C917	1-164-159-11	CERAMIC	0.1uF	50V	
C920	1-126-982-11	ELECT	5600uF	20% 35V	
C921	1-126-982-11	ELECT	5600uF	20% 35V	
C926	1-126-040-11	ELECT	1000uF	20% 35V	
C927	1-126-040-11	ELECT	1000uF	20% 35V	
C928	1-136-177-00	FILM	1uF	5% 50V	
C929	1-136-165-00	FILM	0.1uF	5% 50V	
C930	1-164-159-11	CERAMIC	0.1uF	50V	
C931	1-164-159-11	CERAMIC	0.1uF	50V	
C932	1-164-159-11	CERAMIC	0.1uF	50V	
C933	1-164-159-11	CERAMIC	0.1uF	50V	
C999	1-136-165-00	FILM	0.1uF	5% 50V	

< CONNECTOR >

CN103	1-691-766-31	PLUG (MICRO CONNECTOR) 4P
CN104	1-691-766-11	PLUG (MICRO CONNECTOR) 4P
CN107	1-691-768-11	PLUG (MICRO CONNECTOR) 6P
CN151	1-569-490-11	SOCKET, CONNECTOR 3P
CN154	1-691-765-11	PLUG (MICRO CONNECTOR) 3P
CN155	1-691-765-21	PLUG (MICRO CONNECTOR) 3P
*CN301	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P
*CN308	1-564-339-00	PIN, CONNECTOR 5P
CN333	1-564-506-11	PLUG, CONNECTOR 3P
*CN501	1-564-716-11	PIN, CONNECTOR (SMALL TYPE)14P
*CN508	1-568-933-11	SOCKET, CONNECTOR 30P
*CN571	1-568-829-11	SOCKET, CONNECTOR 10P
*CN572	1-568-825-11	SOCKET, CONNECTOR 6P
*CN576	1-564-336-00	PIN, CONNECTOR 2P
CN932	1-691-772-11	PLUG (MICRO CONNECTOR) 10P

Ref.No.	Part No.	Description	Remark
		< DIODE >	
D101	8-719-107-94	DIODE 1SS202-1	
D102	8-719-107-94	DIODE 1SS202-1	
D103	8-719-107-94	DIODE 1SS202-1	
D104	8-719-107-94	DIODE 1SS202-1	
D201	8-719-107-94	DIODE 1SS202-1	
D202	8-719-107-94	DIODE 1SS202-1	
D203	8-719-107-94	DIODE 1SS202-1	
D204	8-719-107-94	DIODE 1SS202-1	
D301	8-719-107-94	DIODE 1SS202-1	
D302	8-719-107-94	DIODE 1SS202-1	
D306	8-719-200-82	DIODE 11ES2	
D308	8-719-107-94	DIODE 1SS202-1	
D314	8-719-200-82	DIODE 11ES2	
D321	8-719-107-94	DIODE 1SS202-1	
D322	8-719-911-06	DIODE 1SS106	
D324	8-719-911-06	DIODE 1SS106	
D350	8-719-107-94	DIODE 1SS202-1	
D351	8-719-200-82	DIODE 11ES2	
D352	8-719-200-82	DIODE 11ES2	
D501	8-719-936-68	DIODE KV1260	
D550	8-719-045-72	DIODE KV1550NT	
D601	8-719-114-27	DIODE RD4.7JSB3	
D602	8-719-107-94	DIODE 1SS202-1	
D603	8-719-114-30	DIODE RD5.1JSB2	
D604	8-719-107-94	DIODE 1SS202-1	
D605	8-719-107-94	DIODE 1SS202-1	
D905	8-719-312-47	DIODE RBA-406B	
D907	8-719-200-82	DIODE 11ES2	
D908	8-719-200-82	DIODE 11ES2	
D909	8-719-107-94	DIODE 1SS202-1	
D910	8-719-933-33	DIODE HZS6A1L	
D911	8-719-230-02	DIODE 30DF2	
D912	8-719-230-02	DIODE 30DF2	
D913	8-719-230-02	DIODE 30DF2	
D914	8-719-230-02	DIODE 30DF2	
		< FUSE >	
⚠F901	1-532-286-00	FUSE, TIME-LAG (2.5A/250V)	(AEP, E, G)
⚠F901	1-576-105-11	FUSE (2.5A/250V)	(US, CND)
		< IC >	
IC301	8-759-917-18	IC SN74HCU04AN	
IC302	8-759-916-12	IC SN74HC00AN	
IC303	8-759-921-10	IC SN74HC86AN	
IC304	8-759-135-80	IC UPC358C	
IC305	8-759-927-46	IC SN74HC00ANS	
IC306	8-759-947-57	IC CXD1136Q	

Ref.No.	Part No.	Description	Remark
IC307	8-752-339-43	IC CXD2601AQ	
IC309	8-759-032-81	IC MC74HC74AN	
IC310	8-752-356-96	IC CXK58257AM-10LL	
IC311	8-752-854-45	IC CXP80524-092Q	
IC312	8-752-854-44	IC CXP80524-091Q	
IC316	8-759-912-77	IC LM324N	
IC318	8-759-135-80	IC UPC358C	
IC319	8-759-633-65	IC M54641L	
IC320	8-759-633-65	IC M54641L	
IC321	8-759-520-90	IC PST572E	
IC330	8-759-504-23	IC RF5C62	
IC331	8-749-921-11	IC GP1F32R	
IC332	8-749-921-12	IC GP1F32T	
IC333	8-759-916-20	IC SN74HC14AN	
IC351	8-759-602-83	IC M5238P	
IC352	8-759-972-47	IC LF412CN	
IC353	8-759-972-47	IC LF412CN	
IC354	8-759-900-72	IC NE5532P	
IC355	8-759-900-72	IC NE5532P	
IC356	8-759-145-58	IC UPC4558C	
IC357	8-759-231-53	IC TA7805S	
IC358	8-759-245-79	IC TA79005S	
IC359	8-759-196-20	IC CXD8493P	
IC363	8-752-356-03	IC CXD2567M	
IC370	8-759-196-21	IC CXD8482Q	
IC371	8-759-231-53	IC TA7805S	
IC375	8-759-900-72	IC NE5532P	
IC376	8-759-900-72	IC NE5532P	
IC431	8-759-916-18	IC SN74HC10AN	
IC432	8-759-510-43	IC PST572C	
IC502	8-759-925-74	IC SN74HC04ANS	
IC503	8-759-926-95	IC SN74HC4020ANS	
IC504	8-759-250-81	IC TC5081AP	
IC550	8-759-242-72	IC TC7W00F	
IC601	8-759-044-10	IC CXD2562Q	
IC602	8-759-900-72	IC NE5532P	
IC603	8-759-925-90	IC SN74HC74ANS	
IC901	8-759-231-58	IC TA7812S	
IC902	8-759-245-86	IC TA79012S	
		< JACK >	
J101	1-568-751-61	JACK, PIN (2P SHIELD TYPE)	(LINE IN)
J102	1-568-751-61	JACK, PIN (2P SHIELD TYPE)	(LINE OUT)
J181	1-565-406-41	JACK, PIN 1P (COAXIAL OUT)	
J191	1-568-750-21	JACK, PIN (1P SHIELD TYPE)	(COAXIAL IN)
		< COIL >	
L301	1-410-509-11	INDUCTOR 10uH	
L302	1-410-498-11	INDUCTOR 1.2uH	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MAIN

Ref.No.	Part No.	Description	Remark
L303	1-410-509-11	INDUCTOR 10uH	
L305	1-410-515-11	INDUCTOR 33uH	
L306	1-410-509-11	INDUCTOR 10uH	
L307	1-410-509-11	INDUCTOR 10uH	
L310	1-410-953-11	INDUCTOR, SMALL TYPE	
L320	1-410-509-11	INDUCTOR 10uH	
L321	1-410-509-11	INDUCTOR 10uH	
L351	1-410-509-11	INDUCTOR 10uH	
L401	1-410-509-11	INDUCTOR 10uH	
L501	1-426-850-11	COIL (RF)	
L502	1-410-509-11	INDUCTOR 10uH	
L504	1-410-509-11	INDUCTOR 10uH	
L550	1-410-498-11	INDUCTOR 1.2uH	
L601	1-410-397-21	FERRITE BEAD INDUCTOR	
L603	1-410-397-21	FERRITE BEAD INDUCTOR	
L604	1-410-397-21	FERRITE BEAD INDUCTOR	
L605	1-410-397-21	FERRITE BEAD INDUCTOR	
		< TRANSISTOR >	
Q302	8-729-801-93	TRANSISTOR 2SD1387-3	
Q311	8-729-900-80	TRANSISTOR DTC114ES	
Q312	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q313	8-729-900-61	TRANSISTOR DTA114ES	
Q318	8-729-900-80	TRANSISTOR DTC114ES	
Q319	8-729-900-80	TRANSISTOR DTC114ES	
Q320	8-729-927-11	TRANSISTOR 2SA1585SQR	
Q321	8-729-927-12	TRANSISTOR 2SC4115SQR	
Q333	8-729-924-90	TRANSISTOR 2SB1370-EF	
Q334	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q335	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q336	8-729-927-11	TRANSISTOR 2SA1585SQR	
Q337	8-729-927-11	TRANSISTOR 2SA1585SQR	
Q338	8-729-927-12	TRANSISTOR 2SC4115SQR	
Q339	8-729-927-12	TRANSISTOR 2SC4115SQR	
Q340	8-729-900-80	TRANSISTOR DTC114ES	
Q341	8-729-900-80	TRANSISTOR DTC114ES	
Q342	8-729-209-15	TRANSISTOR 2SD2012	
Q432	8-729-900-80	TRANSISTOR DTC114ES	
Q433	8-729-107-85	TRANSISTOR 2SC3623A-K	
Q434	8-729-107-85	TRANSISTOR 2SC3623A-K	
Q435	8-729-900-61	TRANSISTOR DTA114ES	
Q437	8-729-900-61	TRANSISTOR DTA114ES	
Q438	8-729-900-80	TRANSISTOR DTC114ES	
Q440	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q442	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q501	8-729-200-56	TRANSISTOR 2SK241-GR	
Q502	8-729-200-56	TRANSISTOR 2SK241-GR	
Q503	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q504	8-729-620-05	TRANSISTOR 2SC2603-EF	

Ref.No.	Part No.	Description	Remark
Q505	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q601	8-729-140-96	TRANSISTOR 2SD774-34	
Q602	8-729-140-96	TRANSISTOR 2SD774-34	
Q901	8-729-140-97	TRANSISTOR 2SB734-34	
Q906	8-729-119-76	TRANSISTOR 2SA1175-HFE	
		< RESISTOR >	
R107	1-247-854-11	CARBON 9.1K 5% 1/4W	
R108	1-247-854-11	CARBON 9.1K 5% 1/4W	
R109	1-247-854-11	CARBON 9.1K 5% 1/4W	
R110	1-247-854-11	CARBON 9.1K 5% 1/4W	
R111	1-247-844-11	CARBON 3.6K 5% 1/4W	
R112	1-247-844-11	CARBON 3.6K 5% 1/4W	
R115	1-249-429-11	CARBON 10K 5% 1/4W	
R116	1-249-429-11	CARBON 10K 5% 1/4W	
R117	1-249-426-11	CARBON 5.6K 5% 1/4W	
R118	1-249-426-11	CARBON 5.6K 5% 1/4W	
R119	1-249-426-11	CARBON 5.6K 5% 1/4W	
R120	1-249-426-11	CARBON 5.6K 5% 1/4W	
R122	1-247-836-11	CARBON 1.6K 5% 1/4W	
R123	1-247-836-11	CARBON 1.6K 5% 1/4W	
R124	1-249-441-11	CARBON 100K 5% 1/4W	
R125	1-249-408-11	CARBON 180 5% 1/4W	
R126	1-249-429-11	CARBON 10K 5% 1/4W	
R127	1-247-807-31	CARBON 100 5% 1/4W	
R132	1-249-408-11	CARBON 180 5% 1/4W	
R150	1-249-441-11	CARBON 100K 5% 1/4W	
R151	1-249-421-11	CARBON 2.2K 5% 1/4W	
R152	1-249-434-11	CARBON 27K 5% 1/4W	
R153	1-249-441-11	CARBON 100K 5% 1/4W	
R154	1-249-425-11	CARBON 4.7K 5% 1/4W	
R155	1-249-401-11	CARBON 47 5% 1/4W	
R156	1-249-425-11	CARBON 4.7K 5% 1/4W	
R157	1-249-401-11	CARBON 47 5% 1/4W	
R207	1-247-854-11	CARBON 9.1K 5% 1/4W	
R208	1-247-854-11	CARBON 9.1K 5% 1/4W	
R209	1-247-854-11	CARBON 9.1K 5% 1/4W	
R210	1-247-854-11	CARBON 9.1K 5% 1/4W	
R211	1-247-844-11	CARBON 3.6K 5% 1/4W	
R212	1-247-844-11	CARBON 3.6K 5% 1/4W	
R215	1-249-429-11	CARBON 10K 5% 1/4W	
R216	1-249-429-11	CARBON 10K 5% 1/4W	
R217	1-249-426-11	CARBON 5.6K 5% 1/4W	
R218	1-249-426-11	CARBON 5.6K 5% 1/4W	
R219	1-249-426-11	CARBON 5.6K 5% 1/4W	
R220	1-249-426-11	CARBON 5.6K 5% 1/4W	
R222	1-247-836-11	CARBON 1.6K 5% 1/4W	
R223	1-247-836-11	CARBON 1.6K 5% 1/4W	
R224	1-249-441-11	CARBON 100K 5% 1/4W	

Ref.No.	Part No.	Description				Remark
R225	1-249-408-11	CARBON	180	5%	1/4W	
R226	1-249-429-11	CARBON	10K	5%	1/4W	
R227	1-247-807-31	CARBON	100	5%	1/4W	
R232	1-249-408-11	CARBON	180	5%	1/4W	
R250	1-249-441-11	CARBON	100K	5%	1/4W	
R251	1-249-421-11	CARBON	2.2K	5%	1/4W	
R252	1-249-434-11	CARBON	27K	5%	1/4W	
R253	1-249-441-11	CARBON	100K	5%	1/4W	
R254	1-249-425-11	CARBON	4.7K	5%	1/4W	
R255	1-249-401-11	CARBON	47	5%	1/4W	
R256	1-249-425-11	CARBON	4.7K	5%	1/4W	
R257	1-249-401-11	CARBON	47	5%	1/4W	
R301	1-247-804-11	CARBON	75	5%	1/4W	
R306	1-249-417-11	CARBON	1K	5%	1/4W	
R307	1-249-437-11	CARBON	47K	5%	1/4W	
R311	1-249-431-11	CARBON	15K	5%	1/4W	
R312	1-249-421-11	CARBON	2.2K	5%	1/4W	
R313	1-249-421-11	CARBON	2.2K	5%	1/4W	
R314	1-249-435-11	CARBON	33K	5%	1/4W	
R315	1-249-429-11	CARBON	10K	5%	1/4W	
R316	1-247-804-11	CARBON	75	5%	1/4W	
R317	1-247-807-31	CARBON	100	5%	1/4W	
R318	1-249-409-11	CARBON	220	5%	1/4W	
R319	1-249-409-11	CARBON	220	5%	1/4W	
R320	1-249-413-11	CARBON	470	5%	1/4W	
R322	1-249-429-11	CARBON	10K	5%	1/4W	
R326	1-249-409-11	CARBON	220	5%	1/4W	
R328	1-247-804-11	CARBON	75	5%	1/4W	
R329	1-249-409-11	CARBON	220	5%	1/4W	
R330	1-249-417-11	CARBON	1K	5%	1/4W	
R331	1-249-429-11	CARBON	10K	5%	1/4W	
R332	1-249-429-11	CARBON	10K	5%	1/4W	
R333	1-247-887-00	CARBON	220K	5%	1/4W	
R334	1-249-425-11	CARBON	4.7K	5%	1/4W	
R335	1-249-425-11	CARBON	4.7K	5%	1/4W	
R336	1-249-425-11	CARBON	4.7K	5%	1/4W	
R337	1-249-429-11	CARBON	10K	5%	1/4W	
R338	1-249-433-11	CARBON	22K	5%	1/4W	
R339	1-249-401-11	CARBON	47	5%	1/4W	
R340	1-247-881-00	CARBON	120K	5%	1/4W	
R341	1-247-881-00	CARBON	120K	5%	1/4W	
R342	1-247-881-00	CARBON	120K	5%	1/4W	
R343	1-247-889-00	CARBON	270K	5%	1/4W	
R344	1-247-887-00	CARBON	220K	5%	1/4W	
R345	1-247-887-00	CARBON	220K	5%	1/4W	
R346	1-249-441-11	CARBON	100K	5%	1/4W	
R347	1-249-441-11	CARBON	100K	5%	1/4W	
R348	1-249-441-11	CARBON	100K	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R349	1-249-441-11	CARBON	100K	5%	1/4W	
R350	1-249-435-11	CARBON	33K	5%	1/4W	
R351	1-249-435-11	CARBON	33K	5%	1/4W	
R352	1-249-441-11	CARBON	100K	5%	1/4W	
R353	1-249-441-11	CARBON	100K	5%	1/4W	
R354	1-249-441-11	CARBON	100K	5%	1/4W	
R355	1-249-417-11	CARBON	1K	5%	1/4W	
R356	1-249-417-11	CARBON	1K	5%	1/4W	
R357	1-247-807-31	CARBON	100	5%	1/4W	
R358	1-249-417-11	CARBON	1K	5%	1/4W	
R359	1-249-408-11	CARBON	180	5%	1/4W	
R360	1-249-432-11	CARBON	18K	5%	1/4W	
R361	1-249-431-11	CARBON	15K	5%	1/4W	
R364	1-249-408-11	CARBON	180	5%	1/4W	
R365	1-249-425-11	CARBON	4.7K	5%	1/4W	
R368	1-249-417-11	CARBON	1K	5%	1/4W	
R369	1-247-807-31	CARBON	100	5%	1/4W	
R370	1-247-807-31	CARBON	100	5%	1/4W	
R371	1-249-417-11	CARBON	1K	5%	1/4W	
R372	1-247-807-31	CARBON	100	5%	1/4W	
R373	1-249-417-11	CARBON	1K	5%	1/4W	
R374	1-249-417-11	CARBON	1K	5%	1/4W	
R375	1-247-807-31	CARBON	100	5%	1/4W	
R378	1-249-429-11	CARBON	10K	5%	1/4W	
R379	1-249-414-11	CARBON	560	5%	1/4W	
R380	1-249-411-11	CARBON	330	5%	1/4W	
⚠R381	1-216-447-00	METAL OXIDE	27	5%	2W	F
R382	1-249-441-11	CARBON	100K	5%	1/4W	
R383	1-249-401-11	CARBON	47	5%	1/4W	
R384	1-249-437-11	CARBON	47K	5%	1/4W	
R385	1-249-437-11	CARBON	47K	5%	1/4W	
R386	1-249-413-11	CARBON	470	5%	1/4W	
R387	1-247-811-31	CARBON	150	5%	1/4W	
R388	1-249-423-11	CARBON	3.3K	5%	1/4W	
R389	1-249-423-11	CARBON	3.3K	5%	1/4W	
R390	1-249-423-11	CARBON	3.3K	5%	1/4W	
R391	1-249-423-11	CARBON	3.3K	5%	1/4W	
R392	1-249-417-11	CARBON	1K	5%	1/4W	
R393	1-249-420-11	CARBON	1.8K	5%	1/4W	
R394	1-249-429-11	CARBON	10K	5%	1/4W	
R395	1-249-425-11	CARBON	4.7K	5%	1/4W	
R396	1-249-441-11	CARBON	100K	5%	1/4W	
R400	1-249-437-11	CARBON	47K	5%	1/4W	
R406	1-249-429-11	CARBON	10K	5%	1/4W	
R407	1-249-429-11	CARBON	10K	5%	1/4W	
R408	1-249-429-11	CARBON	10K	5%	1/4W	
R409	1-249-425-11	CARBON	4.7K	5%	1/4W	
R410	1-249-425-11	CARBON	4.7K	5%	1/4W	
R412	1-249-441-11	CARBON	100K	5%	1/4W	

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MAIN MOTOR

Ref.No.	Part No.	Description				Remark
R413	1-249-437-11	CARBON	47K	5%	1/4W	
R414	1-249-413-11	CARBON	470	5%	1/4W	
R415	1-249-437-11	CARBON	47K	5%	1/4W	
R416	1-249-437-11	CARBON	47K	5%	1/4W	
R417	1-249-429-11	CARBON	10K	5%	1/4W	
R420	1-249-441-11	CARBON	100K	5%	1/4W	
R421	1-249-441-11	CARBON	100K	5%	1/4W	
R422	1-249-441-11	CARBON	100K	5%	1/4W	
R423	1-249-441-11	CARBON	100K	5%	1/4W	
R424	1-249-411-11	CARBON	330	5%	1/4W	
R425	1-249-411-11	CARBON	330	5%	1/4W	
R433	1-249-409-11	CARBON	220	5%	1/4W	
R434	1-249-419-11	CARBON	1.5K	5%	1/4W	
R435	1-249-409-11	CARBON	220	5%	1/4W	
R436	1-249-409-11	CARBON	220	5%	1/4W	
R437	1-249-409-11	CARBON	220	5%	1/4W	
R438	1-249-409-11	CARBON	220	5%	1/4W	
R439	1-249-437-11	CARBON	47K	5%	1/4W	
R440	1-249-441-11	CARBON	100K	5%	1/4W	
R441	1-249-441-11	CARBON	100K	5%	1/4W	
R442	1-249-441-11	CARBON	100K	5%	1/4W	
R443	1-249-437-11	CARBON	47K	5%	1/4W	
R444	1-249-417-11	CARBON	1K	5%	1/4W	
R445	1-249-419-11	CARBON	1.5K	5%	1/4W	
R446	1-247-883-00	CARBON	150K	5%	1/4W	
R447	1-249-425-11	CARBON	4.7K	5%	1/4W	
R448	1-249-413-11	CARBON	470	5%	1/4W	
R449	1-249-424-11	CARBON	3.9K	5%	1/4W	
R450	1-249-441-11	CARBON	100K	5%	1/4W	
R453	1-249-441-11	CARBON	100K	5%	1/4W	(US, CND, E)
R454	1-249-429-11	CARBON	10K	5%	1/4W	
R455	1-249-413-11	CARBON	470	5%	1/4W	
R456	1-249-429-11	CARBON	10K	5%	1/4W	
R457	1-249-441-11	CARBON	100K	5%	1/4W	
R458	1-249-441-11	CARBON	100K	5%	1/4W	(AEP, G)
R461	1-249-441-11	CARBON	100K	5%	1/4W	
R490	1-249-425-11	CARBON	4.7K	5%	1/4W	
R497	1-249-429-11	CARBON	10K	5%	1/4W	
R499	1-249-429-11	CARBON	10K	5%	1/4W	
R501	1-249-417-11	CARBON	1K	5%	1/4W	
R502	1-249-429-11	CARBON	10K	5%	1/4W	
R503	1-249-429-11	CARBON	10K	5%	1/4W	
R504	1-249-429-11	CARBON	10K	5%	1/4W	
R505	1-249-428-11	CARBON	8.2K	5%	1/4W	
R506	1-249-441-11	CARBON	100K	5%	1/4W	
R507	1-249-417-11	CARBON	1K	5%	1/4W	
R508	1-249-417-11	CARBON	1K	5%	1/4W	
R509	1-249-417-11	CARBON	1K	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R516	1-249-425-11	CARBON	4.7K	5%	1/4W	
R517	1-249-417-11	CARBON	1K	5%	1/4W	
R518	1-249-401-11	CARBON	47	5%	1/4W	
R519	1-249-421-11	CARBON	2.2K	5%	1/4W	
R520	1-247-895-00	CARBON	470K	5%	1/4W	
R551	1-249-421-11	CARBON	2.2K	5%	1/4W	
R552	1-249-425-11	CARBON	4.7K	5%	1/4W	
R553	1-249-417-11	CARBON	1K	5%	1/4W	
R554	1-249-429-11	CARBON	10K	5%	1/4W	
R555	1-249-441-11	CARBON	100K	5%	1/4W	
R601	1-249-417-11	CARBON	1K	5%	1/4W	
R603	1-247-807-31	CARBON	100	5%	1/4W	
R604	1-249-419-11	CARBON	1.5K	5%	1/4W	
R605	1-249-389-11	CARBON	4.7	5%	1/4W	
R650	1-249-417-11	CARBON	1K	5%	1/4W	
R651	1-249-417-11	CARBON	1K	5%	1/4W	
⚠R902	1-212-849-00	FUSIBLE	4.7	5%	1/4W F	
R903	1-249-421-11	CARBON	2.2K	5%	1/4W	
R904	1-249-433-11	CARBON	22K	5%	1/4W	
R905	1-249-433-11	CARBON	22K	5%	1/4W	
R906	1-249-425-11	CARBON	4.7K	5%	1/4W	
⚠R910	1-212-865-00	FUSIBLE	22	5%	1/4W F	
		< VARIABLE RESISTOR >				
RV601	1-241-765-11	RES, ADJ, CARBON 22K				
		< RELAY >				
RY301	1-515-726-11	RELAY				
		< TRANSFORMER >				
T301	1-459-795-11	COIL (WITH CORE)				
		< VIBRATOR >				
X301	1-567-816-11	VIBRATOR, CRYSTAL (18.816MHz)				
X302	1-567-815-11	VIBRATOR, CRYSTAL (22.5792MHz)				
X303	1-578-667-11	VIBRATOR, CRYSTAL (49.152MHz)				
X304	1-567-098-00	OSCILLATOR, CRYSTAL(32.768MHz)				
**********						
*	1-641-486-11	MOTOR BOARD				
		**********				
		< CAPACITOR >				
C01	1-162-851-11	CERAMIC	0.1MF		16V	
		< CONNECTOR >				
*CN1	1-564-337-00	PIN, CONNECTOR 3P				
*CN2	1-564-498-11	PIN, CONNECTOR 5P				
**********						

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PRIMARY REC VOL REEL MOTOR REG 5V REG 6.6V RELAY RF AMP

Ref.No.	Part No.	Description			Remark
*	1-652-228-11	PRIMARY BOARD (US,CND,AEP,G)			
*	1-645-234-11	PRIMARY BOARD (E)			
		**********			
		< CAPACITOR >			
⚠C901	1-161-744-51	CERAMIC 0.01uF		400V	
⚠C902	1-161-742-00	CERAMIC 0.0022uF	20%	400V	
⚠C903	1-161-742-00	CERAMIC 0.0022uF	20%	400V	
⚠C904	1-161-742-00	CERAMIC 0.0022uF	20%	400V	
⚠C905	1-161-742-00	CERAMIC 0.0022uF	20%	400V	(AEP,E,G)
⚠C906	1-161-744-51	CERAMIC 0.01uF		400V	
		< CONNECTOR >			
CN901	1-564-321-00	PIN, CONNECTOR 2P			
CN902	1-564-321-00	PIN, CONNECTOR 2P			(E)
CN902	1-580-629-21	PIN, CONNECTOR 2P			(US,CND,AEP,G)
		< COIL >			
⚠L901	1-421-915-11	COIL, LINE FILTER			
		< SWITCH >			
⚠S999	1-571-722-11	SWITCH, VOLTAGE SELECTION			(VOLTAGE SELECTOR) (E)
**********					
*	1-645-239-11	REC VOL BOARD			
		**********			
		< CONNECTOR >			
*CN102	1-564-519-11	PLUG, CONNECTOR 4P			
		< RESISTOR >			
R101	1-259-462-11	CARBON	27K	5% 1/6W	
R201	1-259-462-11	CARBON	27K	5% 1/6W	
		< VARIABLE RESISTOR >			
RV101	1-241-937-11	RES, VAR, CARBON 20K/20K (REC LEVEL)			
**********					
*	1-639-304-11	REEL MOTOR BOARD			
		**********			
		< CAPACITOR >			
C07	1-163-077-91	CERAMIC CHIP	0.1uF		50V
**********					

Ref.No.	Part No.	Description			Remark
*	1-652-231-11	REG 5V BOARD			
		**********			
		< CAPACITOR >			
C950	1-164-159-11	CERAMIC	0.1uF		50V
C951	1-164-159-11	CERAMIC	0.1uF		50V
		< IC >			
IC950	8-759-231-53	IC TA7805S			
**********					
*	1-652-232-11	REG 6.6V BOARD			
		**********			
		< CAPACITOR >			
C952	1-164-159-11	CERAMIC	0.1uF		50V
C953	1-164-159-11	CERAMIC	0.1uF		50V
C954	1-164-159-11	CERAMIC	0.1uF		50V
		< DIODE >			
D901	8-719-107-94	DIODE 1SS202-1			
		< IC >			
IC951	8-759-148-79	IC UPC2406HF			
		< RESISTOR >			
R901	1-249-425-11	CARBON	4.7K	5% 1/4W	
**********					
*	1-652-229-11	RELAY BOARD			
		**********			
**********					
*	A-2006-455-A	RF AMP BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C1	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C2	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C3	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C4	1-162-638-11	CERAMIC CHIP	1uF		16V
C5	1-164-299-11	CERAMIC CHIP	0.22uF	10%	25V
C6	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C7	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C8	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C9	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C10	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C11	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V

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RF AMP | RGN SW | SW | TIMER SW | TOP END SENSOR

Ref.No.	Part No.	Description			Remark
C12	1-164-299-11	CERAMIC CHIP	0.22uF	10%	25V
C13	1-162-638-11	CERAMIC CHIP	1uF		16V
C14	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C15	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C16	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C17	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C19	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C20	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C21	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C22	1-126-603-11	ELECT CHIP	4.7uF	20%	35V
C23	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C24	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C25	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C26	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C27	1-162-638-11	CERAMIC CHIP	1uF		16V
C28	1-164-505-11	CERAMIC CHIP	2.2uF		16V
		< CONNECTOR >			
*CN51	1-566-207-11	PIN, CONNECTOR (PC BOARD) 14P			
*CN52	1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P			
		< IC >			
IC1	8-752-039-01	IC CXA1364R			
		< COIL >			
L1	1-408-781-00	INDUCTOR CHIP	22uH		
L2	1-408-789-21	INDUCTOR CHIP	100uH		
L3	1-408-781-00	INDUCTOR CHIP	22uH		
		< RESISTOR >			
R1	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R2	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R3	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R4	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R5	1-216-077-00	METAL CHIP	15K	5%	1/10W
R6	1-216-077-00	METAL CHIP	15K	5%	1/10W
R7	1-216-077-00	METAL CHIP	15K	5%	1/10W
R8	1-216-079-00	METAL CHIP	18K	5%	1/10W
R9	1-216-075-00	METAL CHIP	12K	5%	1/10W
R10	1-216-079-00	METAL CHIP	18K	5%	1/10W
R11	1-216-077-00	METAL CHIP	15K	5%	1/10W
R12	1-216-077-00	METAL CHIP	15K	5%	1/10W
R13	1-216-077-00	METAL CHIP	15K	5%	1/10W
R14	1-216-081-00	METAL CHIP	22K	5%	1/10W
R15	1-216-085-00	METAL CHIP	33K	5%	1/10W
R16	1-216-089-00	METAL CHIP	47K	5%	1/10W
R17	1-216-080-00	METAL CHIP	20K	5%	1/10W
R18	1-216-073-00	METAL CHIP	10K	5%	1/10W
		< VARIABLE RESISTOR >			
RV1	1-238-181-11	RES, ADJ, CERMET 4.7K			
RV2	1-238-181-11	RES, ADJ, CERMET 4.7K			
*	1-639-301-11	RGN SW BOARD			
		< SWITCH >			
S01	1-571-878-11	SWITCH, PUSH (2 KEY) (CASSETTE IN/REC PROOF)			
*	1-641-487-11	SW BOARD			
		< SWITCH >			
S1	1-571-958-11	SWITCH, PUSH (1 KEY) (CASSETTE TABLE IN)			
S2	1-571-958-11	SWITCH, PUSH (1 KEY) (CASSETTE TABLE OUT)			
*	1-645-243-11	TIMER SW BOARD			
		< RESISTOR >			
R704	1-249-427-11	CARBON	6.8K	5%	1/4W
R705	1-249-432-11	CARBON	18K	5%	1/4W
		< SWITCH >			
S701	1-692-478-11	SWITCH, SLIDE (TIMER)			
S702	1-554-937-11	SWITCH, KEY BOARD (⏏ OPEN/CLOSE)			
*	1-639-305-11	TOP END SENSOR BOARD			
*	3-368-456-01	HOLDER (END SENSOR LIGHT)			
*	3-368-457-01	HOLDER (END SENSOR) (RECEIVE)			
		< DIODE >			
D01	8-719-988-42	DIODE GL453S			
		< PHOTO TRANSISTOR >			
PH03	8-729-907-25	PHOTO TRANSISTOR PT4850F			
PH04	8-729-907-25	PHOTO TRANSISTOR PT4850F			

Ref.No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
⚠9	1-559-297-31	CODE, POWER (E)	
⚠9	1-559-479-11	CORD, POWER (US, CND)	
⚠9	1-575-912-11	CORD, POWER (AEP, G)	
⚠14	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
17	1-590-321-71	LEAD (WITH CONNECTOR) (CONTROL-S IN)	(US, CND)
107	1-590-915-11	WIRE, FLAT TYPE (30 CORE)	
108	1-765-457-11	WIRE (FLAT TYPE) (10 CORE)	
109	1-765-456-11	WIRE (FLAT TYPE) (6 CORE)	
325	8-848-567-11	DRUM ASSY DOU-03A	
BAT301	1-528-229-11	BATTERY, LITHIUMCR-2450	
⚠F901	1-532-286-00	FUSE, TIME-LAG (2.5A/250V) (AEP, E, G)	
⚠F901	1-576-105-11	FUSE (2.5A/250V) (US, CND)	
M901	A-2003-910-A	MOTOR ASSY, CASSETTE	(CASSETTE COMPARTMENT)
M902	8-835-361-01	MOTOR, DC U-17B (CAPSTAN)	
M903	X-3363-109-1	MOTOR (CAM) ASSY	
M905	X-3363-110-2	MOTOR (REEL) ASSY	
PM902	1-454-536-11	SOLENOID, PLUNGER (BACK TENSION)	
PM903	1-454-535-11	SOLENOID, PLUNGER (REEL MOTOR CONTROL	(BRAKE))
⚠S901	1-554-920-21	SWITCH, PUSH (AC POWER) (1 KEY) (E)	
⚠S901	1-572-267-51	SWITCH, PUSH (AC POWER) (1 KEY)	(US, CND, AEP, G)
⚠T901	1-450-556-21	TRANSFORMER, POWER (US, CND)	
⚠T901	1-450-557-21	TRANSFORMER, POWER (AEP, G)	
⚠T901	1-450-558-21	TRANSFORMER, POWER (E)	
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-465-737-11	REMOTE COMMANDER (US, CND, E/AEP, G:BLACK)	
	1-465-777-11	REMOTE COMMANDER (AEP, G:GOLD)	
	1-558-271-11	CORD, CONNECTION	
*	3-382-950-01	CUSHION	
	3-704-366-01	SCREW (CASE) (M3X8) (CND, E/AEP, G:BLACK)	
	3-704-366-11	SCREW (CASE) (M3X8) (AEP, G:GOLD)	
	3-707-584-01	COVER, BATTERY	
	3-758-840-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE) (AEP, E)	
	3-758-840-21	MANUAL, INSTRUCTION (ENGLISH) (US, CND)	
	3-758-840-31	MANUAL, INSTRUCTION (FRENCH) (CND)	
	3-758-840-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH, ITALIAN) (AEP, G)	
*	3-911-729-01	INDIVIDUAL CARTON	

Ref.No.	Part No.	Description	Remark
		**********	
		HARDWARE LIST	
		**********	
#1	7-682-548-09	SCREW +BVTT 3X8 (S)	
#2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#3	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#4	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
#5	7-685-645-79	SCREW +BVTP 3X6 TYPE2 N-S	
#6	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#7	7-621-775-20	SCREW +B 2.6X5	
#8	7-682-547-09	SCREW +BVTT 3X6 (S)	
#9	7-682-560-04	SCREW +BVTT 4X6 (S)	
#10	7-621-772-00	SCREW +B 2X3	
#11	7-621-772-20	SCREW +B 2X5	
#12	7-685-102-19	SCREW +P 2X4 TYPE2 NON-SLIT	
#13	7-621-773-86	SCREW +B 2.6X4	
#14	7-627-556-17	SCREW, PRECISION +P 2.6X3 TYPE1	
#15	7-621-772-08	SCREW +B 2X3	
#16	7-621-772-18	SCREW +B 2X4	
#17	7-627-552-47	SCREW, PRECISION +P 1.7X4	
#18	7-621-255-20	SCREW +BVTT 2X4 (S)	
#19	7-627-854-07	PRECISION SCREW +P 2X2.5 TYPE3	
#20	7-627-852-27	+P 1.7X3	
#21	7-621-255-15	SCREW +P 2X3	
#22	7-627-552-27	SCREW, PRECISION +P 1.7X2	
#23	7-627-450-28	+K 1.7X2	
#24	7-621-772-08	SCREW +B 2X3	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les components identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

DTC-60ES

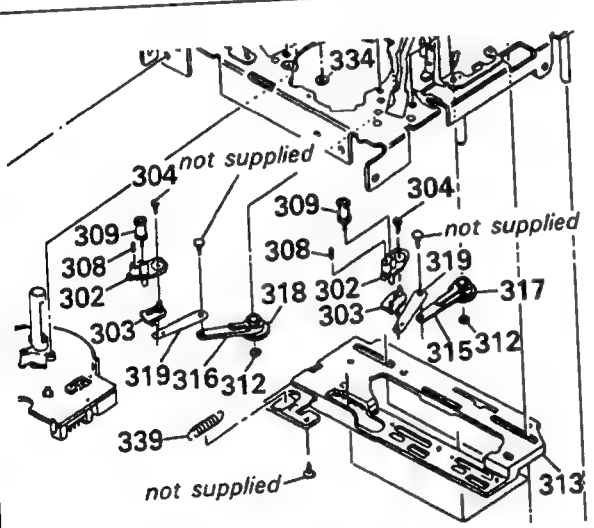
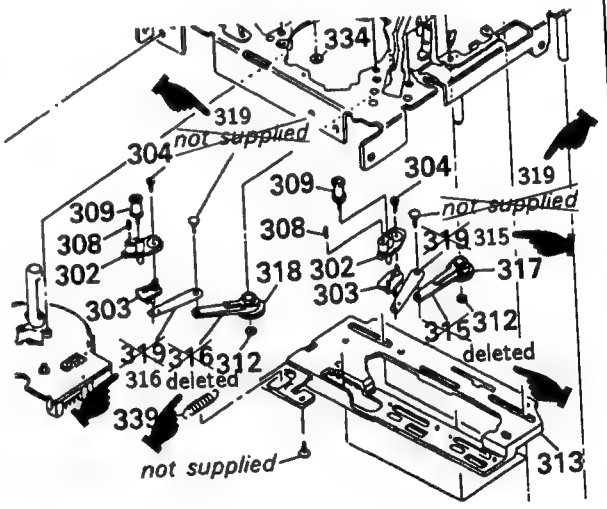
SONY
SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

CORRECTION-1

Correct your service manual as shown below.

☛ : indicates corrected portion.

Page	INCORRECT	CORRECT
65		

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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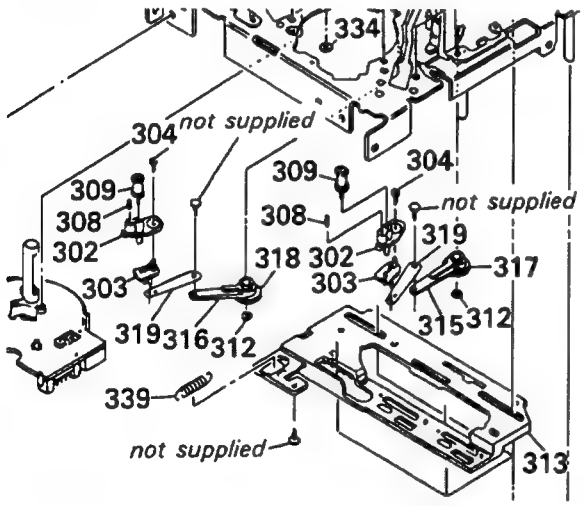
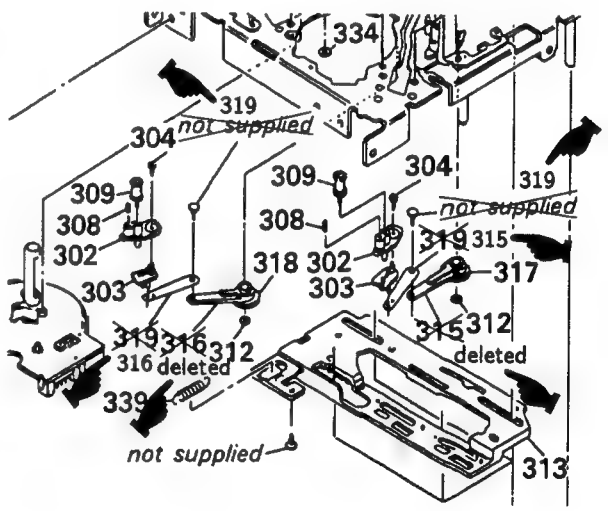
Page	INCORRECT	CORRECT
65		

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SUPPLEMENT-1

File this supplement with the service manual.

Subject : 1. Correction
2. Parts changed
3. Board change

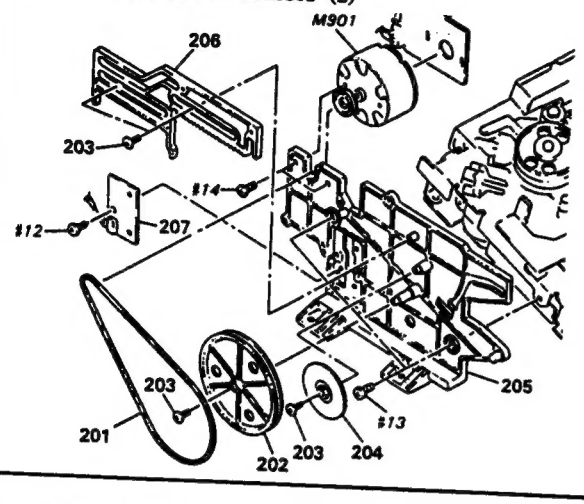
(ECN-TC201118/TC500608/TC500800, SPM-95029)

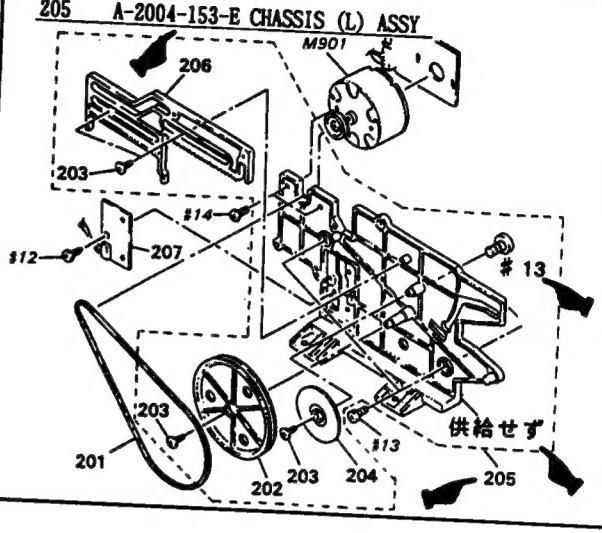
• CORRECTION

Correct your service manual as shown below.

☛ : Indicates corrected portion.

Page	INCORRECT	CORRECT
64	Ref. No Part No Description Remark 205 3-373-234-08 CHASSIS (L)	Ref. No Part No Description Remark 205 A-2004-153-E CHASSIS (L) ASSY

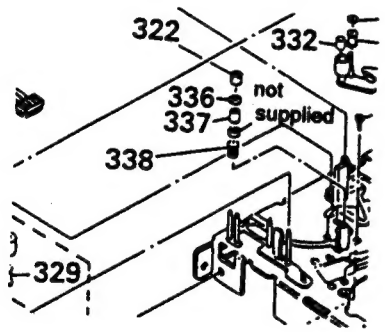


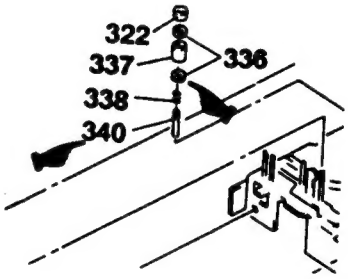


• Parts Changed

☛ : Changed portion.

Page	FORMER	NEW
65	Ref. No Part No Description Remark 307 3-368-428-01 SHAFT (ROLLER GUIDE) not supplied	Ref. No Part No Description Remark 307 3-908-644-01 SHAFT (ROLLER GUIDE) 340 3-337-674-01 SHAFT, GUIDE



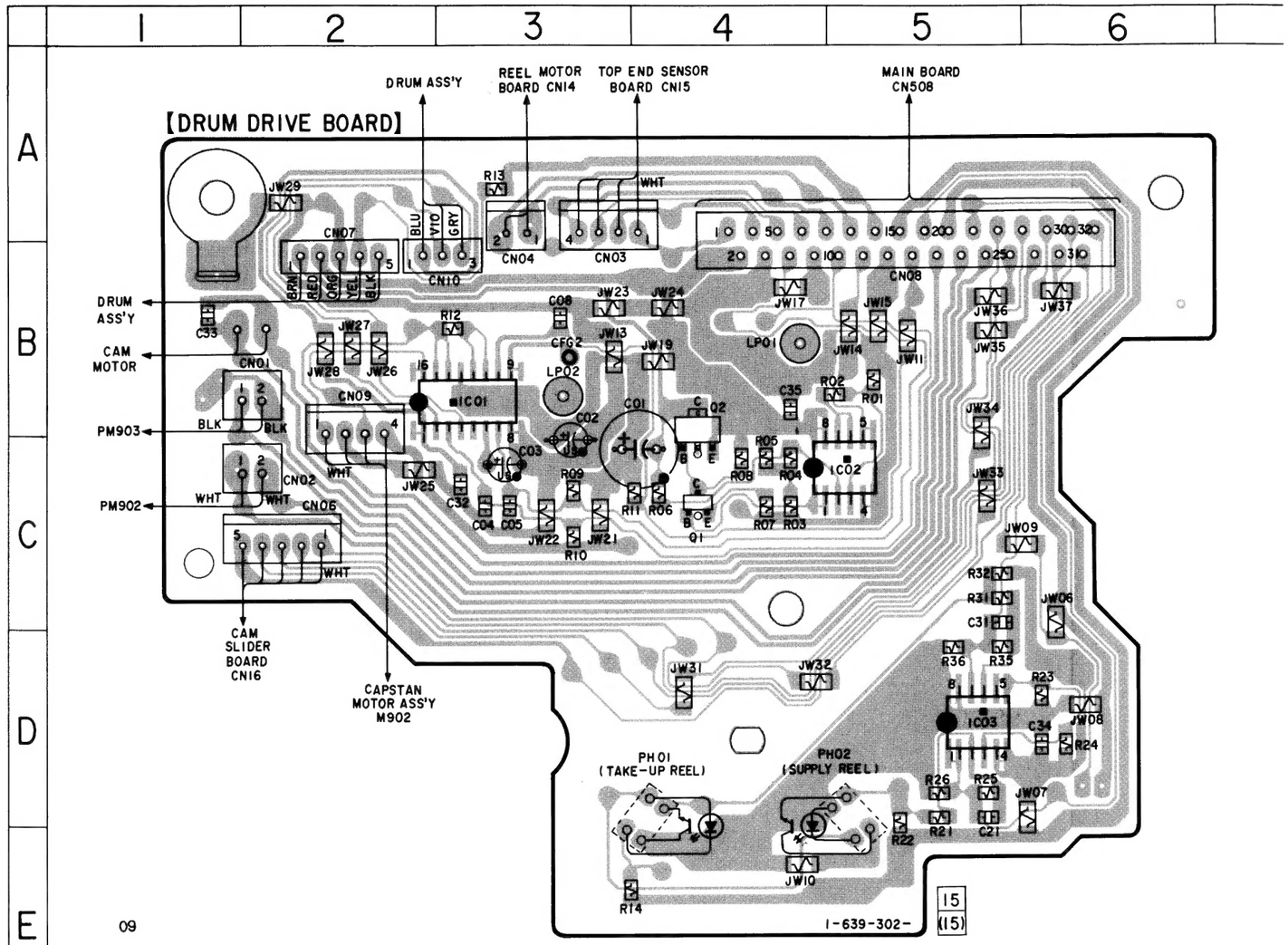


• Revise your service manual as shown below due to parts supply chassification has been changed.

Page	CURRENT	REVISED
65	Ref. No Part No Description Remark 309 X-3337-643-1 GUIDE (RIC) ASSY, ROLLER	Ref. No Part No Description Remark 309 X-3371-518-1 ROLLER GUIDE ASSY

3. BOARD CHANGE

PRINTED WIRING BOARD



09

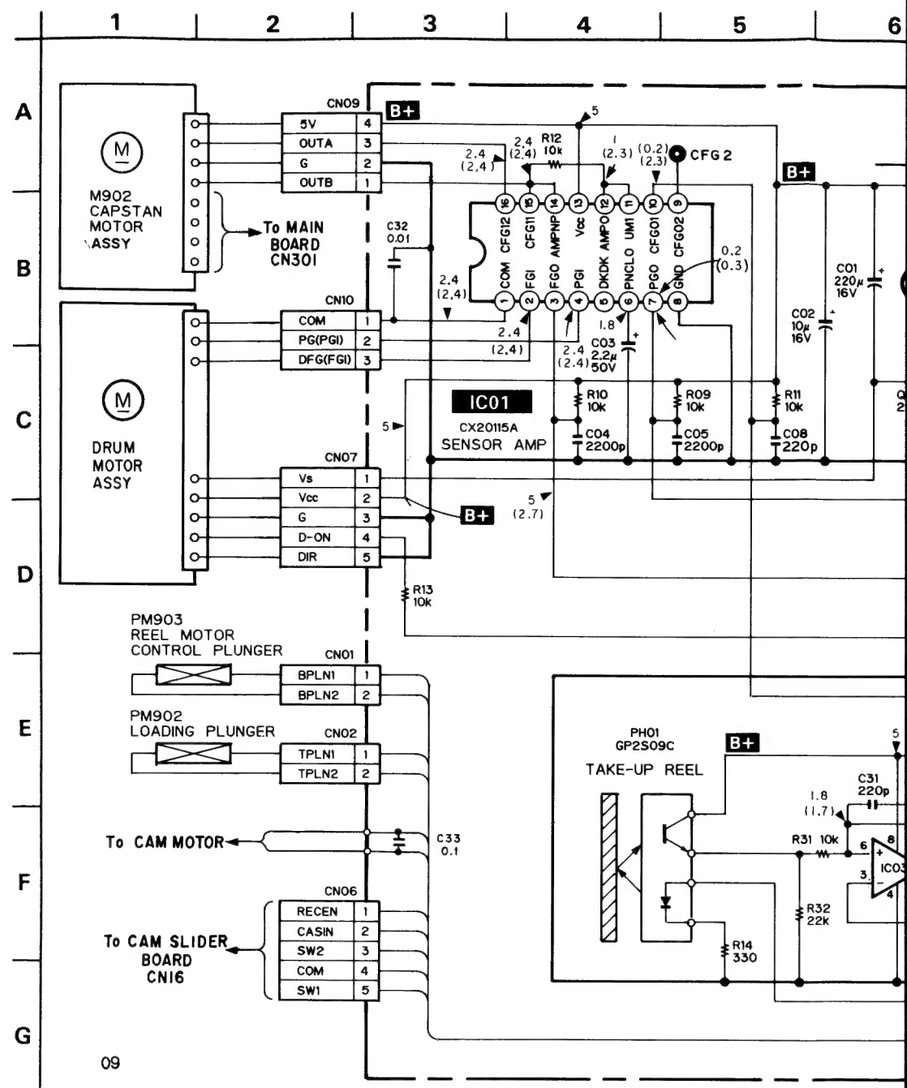
- **Semiconductor Location**

Ref. No.	Location
IC01	B-3
IC02	C-5
IC03	D-5
PH01	D-4
PH02	D-4
Q01	C-4
Q02	B-4

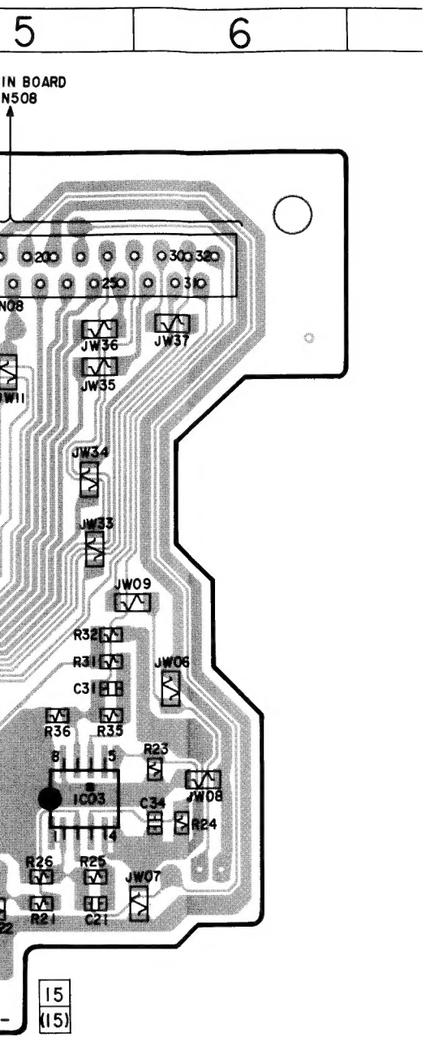
Note:

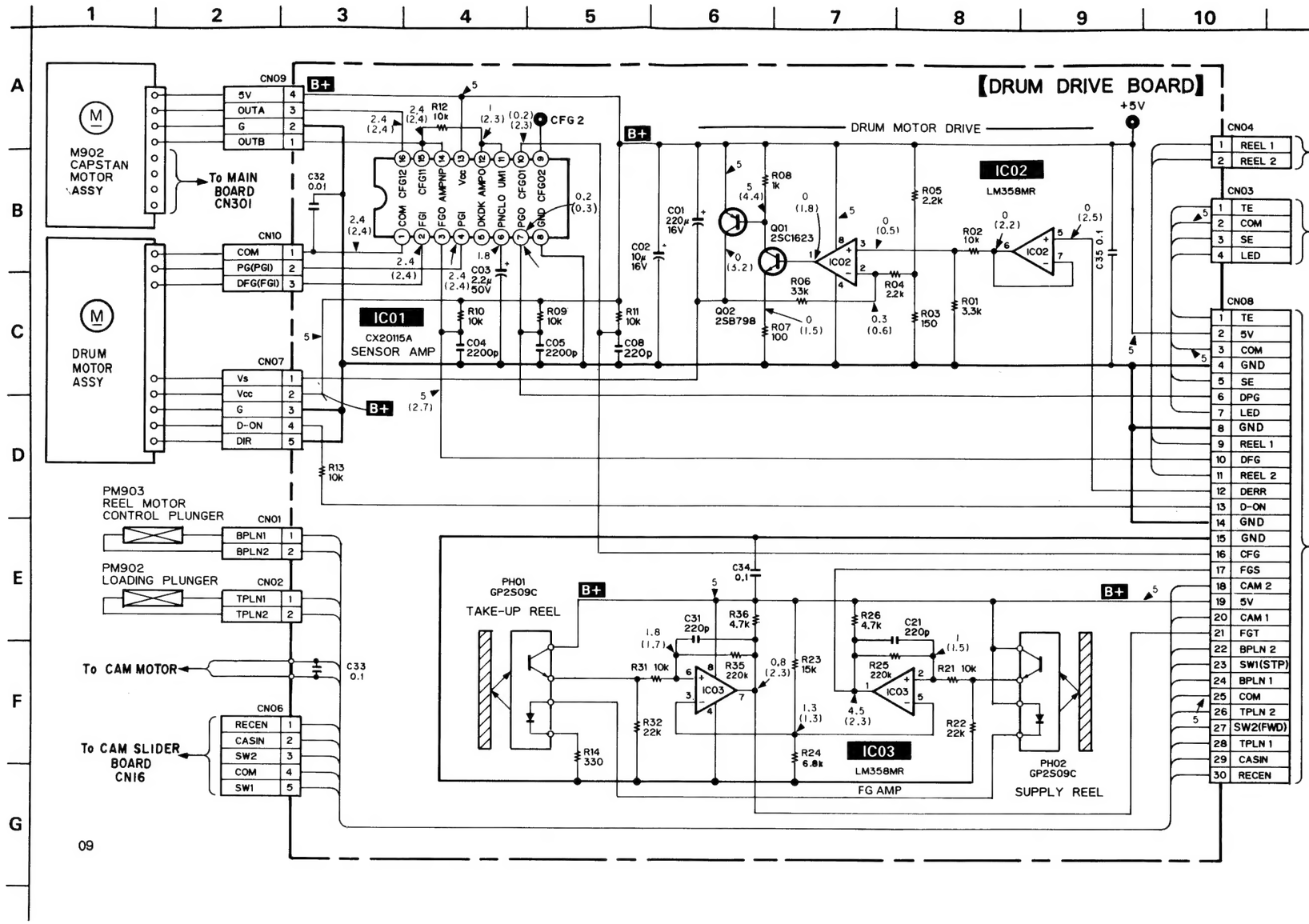
- o—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ▒▒ : Pattern from the side which enable seeing.

SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM





- **Semiconductor Location**

Ref. No.	Location
IC01	B-3
IC02	C-5
IC03	D-5
PH01	D-4
PH02	D-4
Q01	C-4
Q02	B-4

Note:

- o—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ▒▒▒ : Pattern from the side which enable seeing.

Note:

- All capacitors are in μF unless otherwise noted. pF:μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- B+ : B+ Line
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
  ( ) : PLAY
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description			Remark
*	A-2056-488-A	DRUM DRIVE BOARD, COMPLETE			
		**********			
*	3-343-491-01	HOLDER (S SENSOR B)			
*	4-870-539-00	PLATE, GROUND			
		< CAPACITOR >			
C01	1-126-176-11	ELECT	220uF	10V	
C02	1-126-157-11	ELECT	10uF	16V	
C03	1-124-257-00	ELECT	2.2uF	50V	
C04	1-164-161-11	CERAMIC CHIP	0.0022uF	100V	
C05	1-164-161-11	CERAMIC CHIP	0.0022uF	100V	
C08	1-163-001-11	CERAMIC CHIP	220PF	50V	
C21	1-163-001-11	CERAMIC CHIP	220PF	50V	
C31	1-163-001-11	CERAMIC CHIP	220PF	50V	
C32	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C33	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C34	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C35	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
		< CONNECTOR >			
* CN01	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
* CN02	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
* CN03	1-564-338-00	PIN, CONNECTOR 4P			
* CN04	1-564-336-00	PIN, CONNECTOR 2P			
* CN06	1-564-339-00	PIN, CONNECTOR 5P			
CN07	1-564-721-11	PIN, CONNECTOR (SMALL TYPE) 5P			
* CN08	1-568-872-11	SOCKET, CONNECTOR 30P			
* CN09	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
* CN10	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
		< IC >			
IC01	8-752-060-73	IC CX20115A-T4			
IC02	8-759-502-80	IC LM358M			
IC03	8-759-502-80	IC LM358M			
		< JUMPER RESISTOR >			
JW06	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW07	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW08	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW09	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW10	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW11	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW13	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW14	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW15	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW17	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW19	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW21	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW22	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW23	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW24	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW25	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW26	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW27	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW28	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW29	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW31	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW32	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW33	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW34	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW35	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW36	1-216-296-91	CONDUCTOR, CHIP	(3216)		
JW37	1-216-296-91	CONDUCTOR, CHIP	(3216)		
		< PHOTO INTERUPTER >			
PH01	8-719-939-23	PHOTO INTERRUPTER GP-2S09-C (TAKE UP REEL)			
PH02	8-719-939-23	PHOTO INTERRUPTER GP-2S09-C (SUPPLY REEL)			
		< TRANSISTOR >			
Q01	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q02	8-729-101-07	TRANSISTOR 2SB798-DL			
		< RESISTOR >			
R01	1-216-061-00	METAL CHIP	3.3K	5% 1/10W	
R02	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R03	1-216-029-00	METAL CHIP	150	5% 1/10W	
R04	1-216-057-00	METAL CHIP	2.2K	5% 1/10W	
R05	1-216-057-00	METAL CHIP	2.2K	5% 1/10W	
R06	1-216-085-00	METAL CHIP	33K	5% 1/10W	
R07	1-216-025-91	METAL GLAZE	100	5% 1/10W	
R08	1-216-049-91	METAL GLAZE	1K	5% 1/10W	
R09	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R10	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R11	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R12	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R13	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R14	1-216-037-00	METAL CHIP	330	5% 1/10W	
R21	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R22	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R23	1-216-077-00	METAL CHIP	15K	5% 1/10W	
R24	1-216-069-00	METAL CHIP	6.8K	5% 1/10W	
R25	1-216-105-91	METAL GLAZE	220K	5% 1/10W	
R26	1-216-065-00	METAL CHIP	4.7K	5% 1/10W	
R31	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R32	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R35	1-216-105-91	METAL GLAZE	220K	5% 1/10W	
R36	1-216-065-00	METAL CHIP	4.7K	5% 1/10W	

****